





Alfred Gosmer, M. D.





15/



# MEDICAL AND SURGICAL WORKS.

---

## LECTURES on SURGICAL PATHOLOGY.

Delivered at the Royal College of Surgeons of England. By Sir JAMES PAGET, Bart. F.R.S. D.C.L. Oxon. &c. Serjeant-Surgeon Extraordinary to the Queen. Third Edition. Revised and Edited by W. TURNER, M.B. Lond. Professor of Anatomy in the University of Edinburgh. 8vo. with 131 Woodcuts, price 21s.

## ANATOMY, DESCRIPTIVE and SURGICAL.

By HENRY GRAY, F.R.S. late Lecturer on Anatomy at St. George's Hospital. With nearly 400 large Woodcuts after original Drawings from Dissections. The Seventh Edition, by T. HOLMES, Surgeon and Lecturer on Surgery, St. George's Hospital. With an Introduction on GENERAL ANATOMY and DEVELOPMENT, by the Editor. Royal 8vo. price 28s.

## The SCIENCE and ART of SURGERY.

A Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London, Sixth Edition, with 712 Wood Engravings. 2 vols. 8vo. price 32s.

## On CONCUSSION of the SPINE in its CLINICAL and MEDICO-LEGAL ASPECTS.

By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, and Holme Professor of Clinical Surgery in University College, London. 1 vol. crown 8vo. *[Nearly ready.]*

## A SYSTEM of SURGERY, THEORETICAL and PRACTICAL.

In Treatises by various Authors. Edited by T. HOLMES, M.A. Surgeon and Lecturer on Surgery at St. George's Hospital. Second Edition, with numerous Woodcuts, Lithographs, and Chromo-lithographs (in all 472 Illustrations). 5 vols. 8vo. price £5. 5s.

VOL. I. price 21s. GENERAL PATHOLOGY.

VOL. II. price 21s. General and Special Injuries.

VOL. III. price 21s.—Diseases of the Eye and Ear, of the Organs of Circulation, Muscles, and Bones.

VOL. IV. price 21s.—Diseases of the Organs of Locomotion, of Innervation, of Digestion, of Respiration, and of the Urinary Organs.

VOL. V. price 21s.—Diseases of the Genital Organs, of the Breast, Thyroid Gland, and Skin; Operative Surgery, &c.

## The ESSENTIALS of MATERIA MEDICA and THERAPEUTICS.

By ALFRED BARING GARROD, M.D. F.R.S. &c. Professor of Materia Medica and Therapeutics, King's College, London. Fourth Edition, revised under the supervision of the Author, by E. B. BAXTER, M.D. Crown 8vo. price 12s. 6d.

## DR. PEREIRA'S MATERIA MEDICA and THERAPEUTICS.

Abridged, and adapted for the use of Medical and Pharmaceutical Practitioners and Students. Edited by Professor R. BENTLEY, M.R.C.S. F.L.S. and by Professor T. REDWOOD Ph.D. F.C.S. 8vo. with 126 Woodcuts, price 25s.

**A TREATISE on the CONTINUED FEVERS of GREAT BRITAIN.**

By CHARLES MURCHISON, M.D. LL.D. F.R.S. &c. Fellow of the Royal College of Physicians; Physician and Lecturer on the Principles and Practice of Medicine, St. Thomas's Hospital. Second Edition, thoroughly revised and enlarged; with 5 Chromolithographs, 19 Diagrams in Lithography, and 22 Illustrations engraved on Wood. 8vo. price 24s.

**LECTURES on the PRINCIPLES and PRACTICE of PHYSIC.**

Delivered at King's College, London. By Sir THOMAS WATSON, Bart. M.D. &c. Physician in Ordinary to the Queen. Fifth Edition, Revised and Enlarged, with 2 Plates. 2 vols. 8vo. price 36s.

**LECTURES on DISEASES of INFANCY and CHILDHOOD.**

By CHARLES WEST, M.D. &c. Physician to the Hospital for Sick Children. Sixth Edition. 8vo. price 18s.

**The DIAGNOSIS and TREATMENT of DISEASES of WOMEN.**

Including the DIAGNOSIS of PREGNANCY. By GRAILY HEWITT, M.D. Professor of Midwifery and Diseases of Women at University College. Third Edition. With numerous Illustrations (several new). 8vo. price 24s.

**QUAIN'S ELEMENTS of ANATOMY.**

Seventh Edition. Edited by WILLIAM SHARPEY, M.D. F.R.S. Professor of Anatomy and Physiology in University College, London; ALLEN THOMSON, M.D. F.R.S. Professor of Anatomy in the University of Glasgow; and JOHN CLELAND, M.D. Professor of Anatomy in Queen's College, Galway. Illustrated by upwards of 800 Engravings on Wood. 2 vols. 8vo. price 31s. 6d.

**DENTAL PATHOLOGY and SURGERY.**

By S. JAMES A. SALTER, M.B. F.R.S. Member of the Royal College of Surgeons, and Examiner in Dental Surgery at the College; Dental Surgeon to Guy's Hospital. With 133 Woodcut Illustrations. 8vo. 18s.

**DISEASES of the KIDNEY and URINARY DERANGEMENTS.**

By W. HOWSHIP DICKINSON, M.D. Physician to and Lecturer on Pathology at St. George's Hospital. PART I.—Diabetes. With 3 Plates of Figures and 17 Woodcuts. 8vo. price 10s. 6d.

**NOTES on the TREATMENT of SKIN DISEASES.**

By ROBERT LIVEING, M.A. M.D. &c. Physician to the Middlesex Hospital. Second Edition, with Additions. 18mo. price 2s. 6d.

CLINICAL  
LECTURES AND ESSAYS.

LONDON : PRINTED BY  
SPOTTISWOODE AND CO., NEW-STREET SQUARE  
AND PARLIAMENT STREET

CLINICAL  
LECTURES AND ESSAYS

BY

SIR JAMES PAGET, BART.

F.R.S., D.C.L. OXON., LL.D. CANTAB.

SERJEANT-SURGEON EXTRAORDINARY TO HER MAJESTY THE QUEEN,  
SURGEON TO H.R.H. THE PRINCE OF WALES,  
CONSULTING SURGEON TO ST. BARTHOLOMEW'S HOSPITAL.

EDITED BY

HOWARD MARSH, F.R.C.S.

ASSISTANT-SURGEON TO ST. BARTHOLOMEW'S HOSPITAL AND TO THE  
HOSPITAL FOR SICK CHILDREN.

LONDON:  
LONGMANS, GREEN, AND CO.  
1875.



TO MY BROTHER  
GEORGE EDWARD PAGET, M.D., F.R.S.

REGIUS PROFESSOR OF PHYSIC IN THE  
UNIVERSITY OF CAMBRIDGE

IN TOKEN OF GRATITUDE

BOTH FOR HIS LOVE

AND FOR HIS GOOD EXAMPLE HELP AND COUNSEL.





## PREFACE.

---

THE GREATER PART of the contents of this book have been already published in Medical Journals, or in Hospital-Reports. I hope that I am not wrong in publishing them again in this form.

I do not suppose that the book contains much, if anything, which is not known to those who are in large surgical practice, or familiar with surgical literature; but it is not intended for these. Its chief purpose will be attained if it be useful to students and to those who have too few opportunities of studying surgery in either large practice or large books.

Of the many faults in the book of which I am conscious, faults of both matter and style, none seems to me greater than the apparent disregard of the works of others. I beg pardon of all whom I may thus offend.

I would not have been guilty of this fault if I had had time for reading as well as practice.

Mr. Howard Marsh, besides relieving me of the usual troubles of an editor, has done what he can in an appendix of notes to amend the chief of my defects.

1 HAREWOOD PLACE, HANOVER SQUARE,  
*March 1875.*

# CONTENTS.

---

	PAGE
THE VARIOUS RISKS OF OPERATIONS ( <i>Lancet</i> , 1867, vol. ii.) . . .	1
THE CALAMITIES OF SURGERY ( <i>Clinical Lecture</i> , 1868) . . .	51
STAMMERING WITH OTHER ORGANS THAN THOSE OF SPEECH ( <i>British Medical Journal</i> , 1868, vol. ii. p. 437) . . . . .	77
CASES THAT BONE-SETTERS CURE ( <i>British Medical Journal</i> , 1867, vol. i. p. 1) . . . . .	84
STRANGULATED HERNIA ( <i>British Medical Journal</i> , 1872, vols. i., ii.) .	101
CHRONIC PYÆMIA ( <i>St. Bartholomew's Hospital Reports</i> , vol. i. p. 1) .	155
NERVOUS MIMICRY ( <i>Lancet</i> , 1873, vol. ii.) . . . . .	172
TREATMENT OF CARBUNCLE ( <i>Lancet</i> , 1869, vol. i.) . . . . .	252
SEXUAL HYPOCHONDRIASIS ( <i>Clinical Lecture</i> , 1870) . . . . .	268
GOUTY PHLEBITIS ( <i>St. Bartholomew's Hospital Reports</i> , vol. ii. p. 82) .	292
RESIDUAL ABSCESS ( <i>St. Bartholomew's Hospital Reports</i> , 1869, vol. v.) .	310
DISSECTION-POISONS ( <i>Lancet</i> , 1871, vol. i. p. 735, 774) . . . . .	321

	PAGE
QUIET NECROSIS ( <i>Clinical Society's Transactions</i> , vol. iii. p. 138) . . . . .	339
SENILE SCROFULA ( <i>St. Bartholomew's Hospital Reports</i> , vol. iii. p. 412)	344
SCARLET FEVER AFTER OPERATIONS ( <i>British Medical Journal</i> , 1864, vol. ii. p. 237) . . . . .	349
NOTES FOR THE STUDY OF SOME CONSTITUTIONAL DISEASES . . . . .	353
NOTES . . . . .	399
INDEX . . . . .	418

# CLINICAL LECTURES AND ESSAYS.

---

## *THE VARIOUS RISKS OF OPERATIONS.*

---

### LECTURE I.

STUDENTS are always warned against a devotion to the operating theatre. And there is some wisdom in the warning ; but it is very generally neglected. The reasons for liking to see operations are so many and strong and, for the most part, so bad, that it is useless to argue against them. I will therefore try to turn to good use your taste for operations, by trying to provoke you to study a subject connected with them which is not less important than the art of operating—the subject, namely, of the influence of various conditions of patients on the consequences of operations performed on them. You hear me talk in the wards of bad and of good subjects for operation, and of greater and less risks of life ; and in one case I express fears of the effects of shock ; in another, of erysipelas ; in another, of slow and imperfect healing : and you may fairly ask to be taught what, in all these matters, I profess to know or believe. In this and some following lectures I will try to teach you ; not because I can tell you more than is known by most of those who are largely

engaged in surgery, but because I cannot refer you to any book in which you may learn nearly so much upon the matter as you ought to know.

The average risk of life from the effects of any surgical operation may be estimated from tables such as are published in our hospital-reports. And, if an operation be frequently performed, the variations of its risk in each sex, and at different times of life, may be similarly estimated as averages. But it is not within the capacity of tables to supply the means of reckoning the variations of risk dependent on the great variety of personal conditions that we have to do with among the sick. Tables cannot yet tell the several or united influences of differences of constitution, of sound or unsound health, of diseases of internal organs, of race and temper and habits of life. Yet the question of the safety of an operation may turn on these very things. And not only of its safety, but of its utility; for there are some cases in which operations are improper, not because of the risk of life, but because the patients have such peculiarities of constitution that they would suffer more pain or loss of time or of health from an operation than even the cure of their disease would justify. In short, you will find that, if you are to do more good than harm by operative surgery, you must acquire skill in detecting, and, if possible, amending, the defects of health which make operations unsafe or unsatisfactory.

Now, first, we ought to have a good standard of health to which we might refer as the fittest for bearing operations. Such a standard is not to be found among those who, on some reckonings, might be taken for



models of health—those, namely, who have excellent health for either pleasure or an active working life. These are not the best for recovery from operations. Amputations for injuries of limbs, which are, of course, performed for the most part on persons injured while in good health, are about twelve per cent. more fatal than similar amputations for diseases. And the apparent disadvantages of full health which this fact illustrates are to be seen not only in the greater mortality of similar operations, but in the manners and rates of healing of those who recover. You may see two amputations done on the same day : one, say, on a strong man whose limb has just been crushed ; the other on a man utterly enfeebled by old disease of a joint. And then, you may not rarely see, that the healing of the strong man requires a much longer time, and is interrupted by many more untoward events, than that of the weak one.

Do not let me, however, seem to imply by these facts that health is, in itself, a worse condition than disease is for recovery from injuries. It is far more probable that the comparative ill doing of the healthy is due to their circumstances. They have to bear the shock of their injury as well as of the operation ; their mental distress is much greater than that of those who are relieved from disease ; they are subjected to a great and sudden change of habits, and have to give up many of the customs by which they sustained the health that was fit for pleasure or for work. Especially they have to give up the active mental and bodily pursuits in which they excreted largely the large refuse matter of their foods and tissue-waste.

But, however this may be, they from whom we might

take standards of health for some purposes do not supply such standards for studying the consequences of operations. Where then shall we find the lowest rates of mortality and other mischiefs? Perhaps you may find them in a class whom you may often study here. We have a large number of printing-offices in the neighbourhood of the hospital; and every office employs many boys from twelve to sixteen years old; and hardly a week passes but we have one or more of these boys brought-in crushed by the printing-machines. Fingers, hands, and arms are thus mutilated; and I know no class of patients that recover more remarkably. Not only do they not die, but their wounds heal steadily and quickly; they escape erysipelas and spreading suppurations and secondary hæmorrhages; and often, when, to save any piece of a hand, we leave bits of skin that seem as if they could not live, they yet do live and grow good scars.

I know no class of persons who are better subjects for operations than these boys. As Mr. Callender<sup>1</sup> has pointed out, our success with them helps to bring us the credit of a very low rate of mortality in amputations of the upper extremity. You may, however, find individuals, whom I cannot classify, who do bear operations even better. For operations in boys are commonly followed by very sharp traumatic fever, which wastes and weakens them, though it rarely does more harm. But occasionally one meets with patients in whom even a severe operation is followed by neither fever nor any other trouble whatever. I can give you no exact general description of such patients, but I believe you will find them among those who, except

<sup>1</sup> 'St. Bartholomew Hospital Reports,' vol. v. p. 248.

for some local disease requiring the operation, are of sound health, and whose disease, without disturbing their natural tranquillity of mind and constitution, has induced them to live as invalids, carefully and very temperately, never exhausting themselves. They are naturally cheerful healthy persons, to whom an operation brings no great change of habits, but promises release from great unhappiness.

Taking these as the best subjects for operations, and believing that the best possible recovery is one in which the wound heals without inflammation and without fever, we may speak of others as good, or not bad, or bad, or very bad—terms too ill-defined indeed, but as accurate as any knowledge of mine will justify me in using.

Among the various differences of patients, difference of age is probably that with which we may connect the most regular average difference in capacity to bear operations. I believe that, after two or three years old, the increase of age is attended with a proportionate increase of liability to death and other ill consequences of operations. Our hospital-reports and all similar tables will show you this ; but there are many things within the general rule that you should learn.

Young and healthy children are chiefly in danger through the shock of operations, and they bear pain very ill—it adds much to the danger of the shock. But if the shock and pain be well passed, they are in less risk than older patients. Especially, they are singularly little liable to pyæmia after wounds—a strange contrast to their liability to it in association with acute necrosis.<sup>1</sup>

<sup>1</sup> See Note I.

But the chief interest in connection with age is in the cases of old persons, for among them are patients in whom nearly every risk of operations rises to its maximum. Nor will this seem strange if you consider how many disadvantages for the bearing of injuries old age brings with it. The longer a man lives after middle age, the more likely is he to have some organic disease, the more certain is he to have many degeneracies. Hence, to name one source of trouble, the tardy circulation, and the various congestions due to mere sinking of the blood, not in the lungs alone, but in the liver and intestines and all other dependent parts—facts to be much considered in regulating the postures of old people after operations. But the extreme of unfitness for injuries you may see in some of the poor old creatures on whom we are forced, by glimmers of hope, to operate for hernia. They are so near death that, temper it as we may, the least shock kills them.

But among the old there are even greater differences than among the younger in the ability to recover from operations; and age, if reckoned by years, is not the only thing in them that we must estimate. Years, indeed, taken alone are a very fallacious mode of reckoning age: it is not the time, but the quantity, of a man's past life that we have to reckon; and for this estimate, with a practised eye, looks are less deceptive than a tale of years. Even among those old patients to whom you cannot impute disease you may easily, by their appearances, mark out some groups very different in their bearing of injuries. They that are fat and bloated, pale, with soft textures, flabby, torpid, wheezy, incapable of exer-

cise, looking older than their years, are very bad. They that are fat, florid, and plethoric, firm-skinned, and with good muscular power, clear-headed, and willing to work like younger men, are not indeed good subjects for operations, yet they are scarcely bad. The old people that are thin and dry and tough, clear-voiced and bright-eyed, with good stomachs and strong wills, muscular and active, are not bad ; they bear all but the largest operations very well. But very bad are they who, looking somewhat like these, are feeble and soft-skinned, with little pulses, bad appetites, and weak digestive power ; so that they cannot, in an emergency, be well nourished.

I have said that all the risks of doing badly are at their maximum in some among the old ; but these are some of the risks for which they will always need your especial care. The old are, much more than others, liable to die of shock, or of mere exhaustion within a few days after the operation. They bear badly large losses of blood, long exposure to cold, sudden lowering of temperature, loss of food. Large wounds heal in them lazily ; and hence a prolonged liability to secondary hæmorrhage and other mischiefs of open wounds. Their stomachs, too, are apt to knock-up with what may seem to be no more than necessary food, though indeed it often is so ; for many old people are in less peril with a scanty diet than with a full one. Their convalescence is often prolonged ; and you may expect to meet sometimes with great disappointment in having your old patients die with some slight casual disease, as if exhausted by the long expense of vital power in healing large wounds. They get all but well ; and then, after seeming for some

time stationary, they fade and waste and die. They fulfil what I have often told you of the diseases of the aged: that there are some to whom convalescence is more dangerous than disease.

These special dangers of the old will suggest to you some special cares for them. You must choose for them, if you can, short and gentle operations; and be sparing of hæmorrhage; and make wounds that may not lead to long suppurations. You must keep them warm, and not feed them beyond their real necessities, nor keep them long recumbent. Your cares must be doubled when your operations are on the lower limbs, or the lower part of the trunk, or on the back, for in operations on these parts the risks, both local and general, are much greater than in the parts above the heart.

In saying these things about the old, I have had in view only those patients who may call themselves 'well for their age,' and in whom you may find no signs of disease. Infirmities they have—degenerations and decays accumulated and perhaps premature, yet not diseases. Now let me add, that of all the conditions of disease or imperfect health of which I have next to speak as influencing the results of operations, there is no graver complication than old age, unless, indeed, it be habitual intemperance.

And first as to the influence of various constitutions and chronic constitutional diseases, supposing them to be unattended with any considerable organic disease, except that which requires the operation.

Scrofulous patients, whether old or young, have, I think, no special liability to the fatal consequences of

operations, except in so far as they are feeble and may die (though they rarely do) through slow exhaustion, or the gradual development of some internal organic disease. The relief from pain and the removal of irritation commonly seem more than enough to compensate for the shock and other depressing influences they are at first submitted to. They seem not very liable to pyæmia, erysipelas, or other of these sore plagues. All this you may see often enough in our cases of excision of joints; and in these same you may also see, better than in any others, what are the defects of the scrofulous constitution in reference to recovery from operations. The wounds heal very slowly; the cellular tissue is apt to become very œdematous and ‘gummy;’ the scars are thin, and often break down and ulcerate; the deeper cuttings become sinuous, with tedious discharges of thin pus, and wasting. In a word, the half-healed wounds are apt to become like scrofulous ulcers; and if the patients remain long uncured, their constitutional scrofula is increased by long confinement, and perhaps by hospital-air.

Thus, you may sometimes find (but it ought to be in a small minority of cases) that scrofulous patients seem to be, if I may so speak, made more scrofulous by the removal of a diseased limb or joint. And this is, no doubt, the explanation of some of the cases which have led to a belief often entertained, that the removal of scrofulous disease from one part induces its occurrence, or aggravates it, in another. There are, indeed, some cases, especially among the middle-aged and older, in which the two events do seem to stand in direct relations. You may have seen last year a girl in Sitwell, whose forefinger



was removed for scrofulous disease of one of its joints. The wound had scarcely healed before similar disease ensued in a knee-joint, which was sound before the removal of the finger. So, I have seen a patient, one of whose toes was removed for scrofulous disease ; then a knee became similarly diseased, and the limb was amputated above it ; and soon after this, caries of part of the spine ensued. Recovery from this last disease has been followed by no further outward appearance of scrofula. Such sequences, however, are not to be certainly ascribed to the operations. Recently, a patient long under treatment, with scrofulous disease of the elbow, and with the sinuses healing, has had scrofulous disease of the spine, and this has seemed to advance while the disease of the elbow has improved.

The study of the relation of these successions of similar disease in different parts is one in which you may do good and gain honour ; but the event is so far infrequent that, except in the intensely or the acutely scrofulous, or those who are not young, you need not fear it. In the large majority of cases, especially the chronic cases, the removal of a scrofulous part is followed by improved health. Still, remember, the operation is finally effective only against that part ; the patient may remain scrofulous, and may need the same constitutional treatment after, as before, the operation. Therefore, before you operate, make sure, if you can, that the patient, especially if he is old, is one who can stand prolonged confinement. Have this in mind when you have a choice between two or more operations ; and, after the operation, take care that the patient's general condition is helped

with fresh air and fit food and cleanliness and all other good means that you can provide.

The scrofulous patients of whom I have been speaking are such as may be considered very liable to tuberculous disease, though having none actually present—at least in any internal organ. Of the actually tuberculous I will speak hereafter, especially in relation to the risks of those who are phthisical. But now to speak of others.

You will sometimes have to operate on syphilitic patients; and you will find them not bad subjects, except in so far as their syphilis may have made them very feeble or cachectic or, in rarer cases, may have affected their internal organs.

Incisions through, or within the range of contact of, inoculating sores will be inoculated and become chancreous; but I have seen no worse mischief than this in those with primary syphilis. I am not sure that I ever operated on any one with active secondary syphilis; but I have done so in many who have had sores of tertiary syphilis, and have afterwards had renewed tertiary symptoms. But they recovered as well as any other patients of equal general strength, and none of the wounds became like syphilitic ulcers.

In this respect, indeed, the contrast between scrofula and syphilis, as affecting the consequences of operations, may seem very striking; but I suspect that, in a larger number of cases than I have had, some wounds would become seats of syphilitic disease,<sup>1</sup> for it is not rare to find cases in which nodes and necrosis and tertiary ulcers have

<sup>1</sup> Such a case is reported by Mr. Simon in the 'Twelfth Report of the Medical Officer of the Privy Council,' 1869, p. 39.

had their origin in blows and other rough injuries done to syphilitic people.

I have never had occasion to operate on a patient with acute rheumatism. In those with chronic rheumatism, or subject to it, I have seen no mischiefs that could be ascribed to their constitutional defects.

Of the gouty, in reference to their capacity to bear operations, I think that much worse has been said than they deserve. I have, in at least three instances, seen patients attacked with acute gout shortly after capital operations; and the progress of good recovery was in none of them impeded. One of these cases was that of a fat, plethoric, active man, from whom I cut-out a cancerous breast. On the next day gout set in with a furious severity—worse than he had ever had it; yet his wound healed, and he recovered from all the effects of his operation as well as any healthy person could have done.

I have seen no greater troubles in patients whom I have known to be subject to gout or born to it; and I therefore believe that the disrepute of gout for making men unfit for operations is due to the fact that, as gouty people grow old, they become, sooner and more certainly than others, subject to degeneration of the kidneys, heart, arteries and other internal organs. These, and not merely gouty disposition or constitution of the blood, impair their power of bearing injuries and operations. Look sharp for these organic defects and avoid them, and then, I believe, you will find your gouty patients as fit for operations as others of the same ages and habits of life, pro-

vided, of course, that you correct, as far as you can, any actual disturbances of function. Operations may bring out their gout (as the saying is), but will not endanger their lives.

Cancerous patients are certainly not bad subjects for operations, or, at least, not worse than others of similar age and general condition. Many, indeed, being operated on in the early stages of the disease, are, for their age, in a full average of general good health ; and even in those on whom operations are advisable though they are cachectic, it is often remarkable how well their wounds heal, and what a revival of power they display.

These, so far as I have been able to learn them, are the various risks of patients with admitted morbid constitutions. The importance of being able to decide the questions arising in such cases must be evident to you. And questions of equal importance, and of yet greater difficulty, arise in the cases of many who may not be called diseased, but who certainly are not, in any just sense of the word, healthy. Such are the plethoric, the over-fat, the intemperate, the over-fed, the feeble, the degenerate, the cold-blooded. What can be safely said about these, and of the dangers they severally incur when we wound them ? I will try to tell what I believe.

Plethora, pure and simple, is not a bad condition for operations. So far as I have seen, people that have been full-blooded, ruddy, warm, round-limbed, tight-skinned, with strong hearts, and, as we suppose, a rather excess of blood, have done well. But such people must be carefully managed ; not fed too well ; not kept too long in

bed ; not allowed to retain their refuse ; and mere bigness must not be taken for plethora.

For the over-fat are certainly a bad class, especially when their fatness is not hereditary, but may be referred in any degree to their over-eating, soaking, indolence, and defective excretions. The worst of this class are such as have soft, loose, flabby, and yellow fat, and I think you may know them by their bellies being pendulous and more prominent than even their thick subcutaneous fat accounts for ; for this shape tells of thick omental fat and, I suppose, of defective portal circulation. I know no operations in which I more nearly despair of doing good, than in those for umbilical hernia or for compound fractures in people that are over-fat after this fashion. Nothing short of the clearest evidence of necessity or of great probable good should lead you to advise cutting operations in people of this kind. Do lithotripsy for them rather than lithotomy ; incline against amputations for even bad compound fractures ; and, wherever you can—as, for instance, for cutaneous cysts, hæmorrhoids, and the smaller examples of scirrhus mammary cancers,—use caustics rather than the knife or ligature.

All these warnings must be doubled for the intemperate. One does, indeed, sometimes meet with habitual drunkards who pass safely through the perils of great operations ; but these are rare exceptions to the rule, according to which one may reckon that the risks of all operations increase with the increasing degrees of habitual intemperance. I think you will find that a habit of slight intemperance is much worse than occasional great excesses ; that regular soaking is worse than irregular carous-

ing ; probably because of the steady impairment of the blood and of all the textures to which the soaking leads. Of course, you will keep your hands off notorious drunkards, unless you are driven by the stress of a strangulated hernia, or a stopped windpipe, or something leaving you as little choice as these do. But you must be on your guard to detect a good deal of drunkenness of the soaking kind which is not notorious and not confessed. Be rather afraid of operating on those, of whatever class, who think they need stimulants before they work ; who cannot dine till after wine or bitters ; who always have sherry on the side-board ; or are always sipping brandy-and-water ; or are rather proud that, because they can eat so little they must often take some wine. Many people who pass for highly respectable, and who mean no harm, are thus daily damaging their health, and making themselves unfit to bear any of the storms of life. Especially they are doing so, who increase their stimulants while they diminish their food. This is a fatal error, much worse than that of both eating and drinking in excess.<sup>1</sup>

On all such as these, operations are more than doubly hazardous. Of course you may hear of wondrous escapes from dangers, and, on the credit of a few exceptions, silly proverbs are made about the impunity of drunkards ; but the general rule is certain. Every risk of an operation is increased in the habitually intemperate ; they are, above the average, liable to every one of all the sources of danger and of death.

I have had no sufficient experience among teetotalers to enable me to speak with any certainty of their capacity

<sup>1</sup> See Note II.

for bearing operations. I cannot doubt that a patient trained, all his life, to habits of rigid temperance would bear injuries of all kinds much better than the average of men; but people of this sort are not commonly those with whom you have to do under the name of teetotalers. These are, much more commonly, such as have been intemperate or, to say the least, imprudent, in their manner of living, and have then wholly changed their habits, and lived without any stimulants whatever. Of such people I have no good opinion when they come to be the subjects of surgery; for they seem to retain the bad liabilities of the intemperate long after they have given up their bad habits. I would not adopt the opinion that I have heard some express, that teetotalers are worse patients than drunkards; but I should always expect that a very long period of reformation would be required to free a man from the damages he has sustained by intemperance.

Over-eating is not commonly supposed to lead to any such risks of life as over-drinking does; yet I believe that you will find, in operative surgery, that among the habits that increase the risks of life, this may stand not far off drunkenness, especially if the over-eating is of meat and other nitrogenous foods. I am led to believe this from several cases that I have observed, and I think that there are large evidences of it. You know that the general results of operations in provincial hospitals tell of a smaller mortality than in the hospitals of London and the largest towns. The difference is commonly ascribed to differences in the purity of the air, and other advantages of that kind in the comparatively rural districts. I believe that much more of it is due to the differences of habits



in the several classes of patients.<sup>1</sup> The differences are many; but one of the chief of them is that the poor in the agricultural districts eat far less meat than those in large towns do, and are, by comparison, less fed though probably not worse fed; and you may frequently observe that patients who come to us from agricultural districts bear operations in all respects better than Londoners who are submitted to the same proceedings. Of course many things concur to make the differences of constitution between a town- and a country-population; but I am satisfied that among these things a very potent influence is exercised by the difference of diet. And the differences that we may thus see are strongly illustrated by what one hears of the results of operations upon the natives of India and other Eastern countries, whose diet is almost exclusively vegetable. Almost any amount of injury may be inflicted on them and not be followed by the destructive mischiefs which occur in Europeans under the same circumstances. They are defective, it is said, in healing power; but they recover with comparative certainty, however slowly, from operations of the greatest magnitude. A common expression about them is, 'You can't kill them.'<sup>2</sup>

There are many patients to whom you cannot assign a morbid constitution, but who are feeble in all their processes. No organ, it may be, works wrongly; but no organ works with due power. Many children are in this condition, and some adults, whose condition has been admirably portrayed by Dr. Chambers in his book<sup>3</sup> on

<sup>1</sup> See a paper by Mr. Callender in 'St. Bartholomew Hospital Reports,' vol. v. p. 244, et seq.

<sup>2</sup> See note III.

<sup>3</sup> *Climate of Italy*, 1865, p. 8, et seq.

Italy. They are not always bad subjects for operation. Repair will probably take place in them as feebly as any other vital process ; but I believe they are not particularly liable to those diseases after operations from which the greatest risks arise. Children of this class you should be cautious of operating upon for hare-lip or other such defects as do not urgently require interference ; and in adults, if you can defer operations to some period of better health, you should do so ; but all this for fear of local failure rather than for incurring any unusual risk of life. For in the management of these, as of all cases, you will find that the chief vital risks of operations are not through mere defects of power, but through diseases. The measure of danger is not in the proportion between more or less of vital force, and more or less of exhaustion, but in the amount of liability to real diseases of the blood and tissues.

You often hear me speak of patients as ‘ cold-blooded.’ I do not know that the whole of their blood is less warm than that of ordinary persons, but some of it is, for their hands and feet are seldom or never naturally warm ; and some of them feel, when you touch them, as cold as reptiles in the same climate—their hands and feet feel as moist and damp as toads and frogs. The circulation in all these cold parts is of course very slow, and probably it has not a due velocity in any of their textures ; for wherever you can see vascular parts in them they are of duller tint than they should be, dusky, and with a purple hue rather than a rosy one ; and with these signs you find small pulses, and general indications of slowness in all vital processes. They digest slowly, and are very

prone to constipation ; and the women among them menstruate disorderly, and are liable to headaches and backaches, and a variety of nervous symptoms. People of this kind are so numerous that you will do well to look-out for them among your cases, and to treat them specially with iron, with particular regard to this cold-bloodedness and slowness of life. They are not bad subjects for operations ; rather, I should reckon them amongst the good ones ; for they have always seemed to me singularly little liable to fall into the troubles of erysipélas or pyæmia, or any other disorders of the blood ; and the healing of their wounds is not apt to be interrupted. Observe their defects ; minister to them with warmth and good food, but not with stimulants or great eating, and they will do as well as any you will have.

And, to finish this account of the influence of diseased, or disorderly, constitutions on the results of operations, let me tell you of the people that are commonly called 'nervous.' I do not refer to those who manifest disease in any part of their nervous system, but those that are exceedingly sensitive, mobile, and excitable, whether in their sensitive or motor organs—who are very emotional, and with their whole cerebro-spinal nervous system altogether too alert. You will find them and their friends always apprehensive of the results of operations ; they will tell you that they are so nervous they can bear no shock ; and they look with the greatest apprehension upon the infliction of any injury. All this is fallacious. You may be surprised at observing how very little influence upon their organic processes this excessive vivacity of their cerebro-spinal system exercises. Time after

time I have found patients who have complained of agonies in their wounds, and I do not doubt have felt them, but whose pulses have been unmoved. They have had enormous pain, but no fever, no single sign of disturbance of their general nutrition; they have had spasmodic movements of their limbs, tremblings, and rigors, but no mischief has followed. Besides, the same mobility of mind which makes these patients very fearful before an operation makes them hopeful directly after it; and amongst all the people that can in any sense be called invalids, I know none who more generally pass through the consequences of operations with impunity than do those who are commonly called nervous, and whose nervousness consists, if I may use the expression, in too great a vivacity of their whole cerebro-spinal system.

Sometimes you may be forced to operate during the continuance of an acute disease; and although the circumstances of the case may give you little choice as to whether you should operate or not, it is well to be aware of the degree in which the acute disease may influence the result of your proceedings.

Patients with ague bear operations as well as others of the same class; but, in the course of their recovery, they may alarm you by having one or more ague-fits, exactly resembling those that precede pyæmia. And more than this: if a patient has ever had ague and, even many years afterwards, you perform an operation on him, ague may seem to be renewed in him at some short time after the shock, or loss of blood, or whatever other damage he may have sustained. I have so often noticed this that, whenever I hear of severe rigors following any

operation, I ask for a previous history of ague; and I have sometimes found that the patient has almost forgotten it in the long lapse of time since he suffered from it.

The question of amputation often arises when the patient is suffering with erysipelas, or with that spreading inflammation of the cellular tissue which is closely akin to erysipelas. I have often said to you that I look upon a secondary amputation as a confession of either a mistake or a disappointment. Either a primary amputation ought to have been done, and by mistake it was left undone, or if for any apparently sufficient reason it was not done, the necessity of doing the secondary amputation implies the disappointment of just hopes. I have spoken with this disparagement of secondary amputations because the necessity for them is so likely to come when the probability of success is reduced by the operation being performed while the patient is in acute disease. I cannot tell you the numerical increase of risk; but I believe that the mortality after amputations during erysipelas, or spreading cellular inflammation, would be found very much greater than that of primary amputations, or of secondary amputations done for merely wasting suppuration or irreparable local damage. I scarcely know any set of cases in which I have operated with less hope than in those of compound fracture, or similar injuries, in which the question is raised whether a patient, who seems dying with acute disease, may have what is called a chance of his life by amputation. In the large majority of such cases the chance by operation seems to me less than that of keeping the patient alive by the ordinary

treatment of erysipelas, or whatever other acute disease he may be suffering with.

What are the chances of recovery from operations done during pyæmia? I think I can answer safely, that with acute pyæmia, in which the patient has rigors once or more in a few days, and profuse sweatings with very rapid pulse and breathing, and with delirium, and rapid wasting, or with dry tongue and yellowness of skin, or any considerable number of these symptoms, the probability of good is so small, and of harm so great, that you should refuse to operate. But in chronic pyæmia, when the disease requiring operation adds largely to the exhaustion from which the patient is suffering, the removal of the disease may be very proper. Suppose, for example, a patient with a crushed foot or a crushed hand, in whom signs of acute pyæmia have recently appeared. Whatever be the state of the injured part, I would not add the damage of an amputation to the burden that the patient already has to bear. But if the pyæmia have become chronic, attended with only wasting and sweating and the formation of abscesses here and there, and if the injured part be manifestly useless, or a source of irritation or of exhaustion, the mere existence of pyæmia in the chronic form would not turn me from the operation required by the part.

The occasions for operating in any other than these acute diseases are not many, but in diphtheria or croup you may have to perform tracheotomy, and during peritonitis a hernia may require operation. These are all cases of necessity, and their results are not materially affected by the general acuteness of the disease. If their

local good is accomplished, the healing of the wound and the recovery of the patient may occur as in any ordinary case, unless, indeed (which I have never seen), a wound, after tracheotomy,<sup>1</sup> should itself become diphtheritic.

<sup>1</sup> I have known the particulars of upwards of fifty cases in which tracheotomy was performed in children suffering with diphtheria, and I have never seen the wound attacked by the disease. Trousseau says (*Dictionnaire de Méd.* 1835) that in the course of an epidemic he has seen leech-bites, slight cuts, blisters, and excoriations in various parts of the body, and different wounds, become diphtheritic. And Dr. Squire (Reynolds' *Syst. of Med.* vol. i. p. 388) makes a similar statement.—[Ed.]

## LECTURE II.

IN the last lecture I told you what I believe about the various degrees of risk incurred by persons of various ages, habits, and constitutions when submitted to surgical operations. The questions involved in trying to estimate these risks are very difficult, even in their simplest forms ; and the difficulties are subject to manifold increase, when, as commonly happens, varieties of habit, constitution, and general disease are variously intermingled. Nor can they be limited even within these complications ; for often we have to operate when local diseases add their interferences to those of peculiarities of constitution or of habits.

I refer to all these difficulties, not to magnify the value of anything that I can tell you, but to justify my speaking doubtfully on many points, and talking of belief rather than of knowledge. I must thus speak, especially, when referring in this lecture to the influence of local diseases on the risks of operations ; for of these no man's life can be long enough, busy enough, and thoughtful enough to enable him to gather such experience as can justify positive assertion. I cannot pretend to have attained to more than such belief as, being vague, we vaguely express by speaking of impressions more or less strong. I might doubt whether such beliefs should be promulgated, if it were not certain that much of our



most useful practice is founded on similar beliefs. We may be very ready to call them knowledges; but they do not deserve the name, and yet we must practise in accordance with them; just as in all the affairs of ordinary life, when certainty is not attainable, we are bound to act upon the highest probability that we can discern.

With this understanding let me tell you what I can of how various local diseases influence the results of operations.

Amongst affections of the organs of digestion, I have no experience whatever of the influence of organic disease of either the stomach or intestines. From ordinary gastric dyspepsia, associated with a moderately healthy condition of other organs, you will very rarely find any serious results on the consequences of operations. I have seen nothing worse than vexation from flatulence, heart-burn, and the like symptoms of what we suppose to be mere functional derangement of the stomach. They need that the patient should be carefully dieted, but nothing more. But I believe that dyspepsia may become a serious complication in any of the very few cases in which large feeding is necessary, especially if it be such dyspepsia as is often attended with vomiting. You should always inquire about such symptoms as even occasional vomiting; for besides those troubles that may arise after operations, I think that of an untoward bearing of ether and chloroform must be reckoned as among its risks. Certainly, some of the worst effects of chloroform I have seen, with long-continued vomiting, and the consequent great exhaustion, have been in persons in whom it ap-

peared to have aggravated a natural irritability of stomach. Remember, too, what I have said about feeble digestive powers in old persons, and how their stomachs are apt to fail after operations.

Among the diseases of the intestines, dysentery and, even, the effects of dysentery long past, prove themselves very grave complications. They were so, especially, in the Crimean war ; happily, in civil practice, we very rarely have to consider them.

The nearest likeness to dysentery which we see is acute diarrhœa. Except in cases of urgency, you will, of course, never operate till this is checked ; but in urgent cases, especially in those of irritative fever with cellular inflammation, diarrhœa adds largely to the risk. And so it does, I think, in patients in whom it precedes the descent of a hernia that becomes strangulated. This is a more frequent event than you might suppose, and it seems to me always dangerous when, soon after the strangulation of a hernia is relieved, the bowels act irritably and with copious liquid evacuations. It is one of the many instances in which you will find, when dealing with strangulated hernia, that you are not dealing with merely mechanical difficulty in the intestines, but with some disease which has produced or favoured the strangulation, and upon which your operation has no good effect whatever. Besides, speedy movements of the bowels after operations for hernia are, I think, always injurious.<sup>1</sup> They destroy the quietude which is requisite for the recovery of all the disturbed and damaged parts.

An accidental diarrhœa is only serious when it happens in persons much exhausted. In those that are

<sup>1</sup> See note IV.

habitually subject to diarrhœa, if an attack of it happens after an operation, it is not likely to do any harm: But in children and in old people, and in those that are exhausted, diarrhœa may be very serious ; especially it may be so in children, in whom it comes on after operations of all kinds, and in whom you must check it abruptly with opium or any other means.<sup>1</sup>

I hardly need tell you that it is well to have a patient's bowels properly open before an operation (everybody looks to that), and to see that, as far as possible, the intestinal secretions are healthy. The tradition of this necessity is not likely soon to fade-out at St. Bartholomew's. And if I do not refer to the subject more fully, it is only because the rule for it comes within the much larger rule that, so far as may be possible, the secretions of all the organs of the body should be set right, or kept right, before a patient is subjected to any risk from injury. But, respecting constipation, I think its importance has been over-stated. Repeatedly, after operations for hernia, I have observed that no patients do better than those in whom, without any sign of abiding strangulation, the bowels do not act for four, five, or even more days after the operation. And in cases of operation for fissured perineum and vesico-vaginal or recto-vaginal fistula, in which one used formerly more than now to keep the bowels at rest for many days, I never saw any general disturbance of the health due to the mere inaction of the bowels. It was, indeed, often remarkable that while the action of the bowels was arrested for ten, twelve or more days, the patient passed through the ordinary process of recovery from the operation in

<sup>1</sup> See note I.

exactly the same manner, with the same reaction, the same recovery from reaction, and the same gradual regaining of power, as those do whose bowels act daily. From mere constipation, therefore, you need not anticipate any generally bad result. I do not recommend you to be altogether unmindful of it; but you need not, as some do, consider it the matter of chiefest importance. There is, however, a risk from constipation against which you must very carefully guard. In some people a difficult or very copious action of the bowels is an exhausting process; and in these the exhaustion, after many days' inaction, may be a serious matter. Therefore always give directions that in their cases, and, indeed, in all cases after constipation, wine or food is to be given after, or even during, any great action of the bowels. I believe I have known a life lost through neglect of this rule. The patient was a very feeble person whose breast had been removed. She was habitually costive, and her bowels had not acted for five or six days. Then, after some slight aperient, there came a profuse action. Shortly after, she had a rigor; and then pyæmia set-in, of which she died. And in another case, after compound fracture, a patient, who seemed a healthy man, twice, after considerable evacuations of the bowels, had such collapse as seemed for a time to imperil his life. Guarding yourselves against these risks, I think you may look upon constipation as an inconvenience to the patient rather than any serious addition to his risks.

Among diseases of the digestive organs which occur in sufficient frequency to affect the risks of dying after operations, I suspect that none are of greater importance

than those of the liver. Of course, one's experience of them cannot be sufficient to define the several degrees of risk connected with each disease. As a general rule, however, you should be cautious in operating upon those whose biliary secretions are habitually unhealthy; or those who have been often jaundiced; or those who bear that sallow, dusky complexion, with dry skin, and dilated small bloodvessels of the face, and sallow, bloodshot conjunctiva, which commonly tell of what is supposed to be an 'inactive liver.' Many of this last class are not temperate; many are sedentary and indolent; many suffer habitually with hæmorrhoids; probably, all have some abdominal plethora; probably, all their digestive organs act as ill as their skins do. But whatever we may guess to be the special defect of these organs, you need not doubt that operations upon those who have them are attended with more than the average risk, and that when you are obliged to operate you must do so with more than ordinary care and caution. And there are graver diseases of the liver than these, which you must look to; especially the enlargement of the liver, whether amyloid or fatty, which is not rarely coincident with chronic diseases of the bones in children and young persons. This is undoubtedly a frequent cause of death after resection and amputation, from which in healthy children the mortality is so small. In some, it merely seems to hinder recovery, and they die slowly exhausted; in some, I believe you will find it the chief reason for such defective healing as leads to secondary hæmorrhage. The fear of consequences such as these may give you the rule never to operate for chronic diseases of bones or joints.

without a specially careful examination of the liver ; for although its diseases may be comparatively most frequent in young patients, they may be found at any age.

Diseases of the heart are, on the whole, much less serious hindrances to recovery from operations than you might suppose. Doubtless, patients with very weak fatty hearts are in some greater danger from chloroform than others are ; but when it is cautiously given, even these may take it safely ; and I have never heard or seen anything that would make me think the administration of chloroform specially dangerous in any such patients with diseased hearts as a reasonable man would think of operating on. I have known it administered to patients with considerable valvular disease without any appearance of danger ; and certainly, in any such case, the risk of chloroform would be less than that of the pain and alarm attending any considerable operation performed without it.

The shock of an operation has a greater than its ordinary risk in one whose heart is feeble, or embarrassed by valvular obstruction ; and those with feeble hearts will ill bear much loss of blood. But when these risks are past, patients with diseased hearts have appeared to me not prone to any dangerous complication. And there is probably good reason for this—namely, that as soon as the shock of an operation is over, less than the natural force of heart is sufficient for all the purposes of life of a patient who lies quietly in his bed, or whose activity is reduced much below that which was customary with him. Do not let me seem to say that weak and diseased hearts are trivial matters in these or in any other cases. I would only have you believe that they are not such

grave affairs as, at first thought, or without experience of them, you might suppose. At any rate, I have never seen anything to make me suppose that defective circulation makes a man specially liable to pyæmia, or any other of the chief perils after operations.

While speaking of diseases of the heart, let me tell something of certain manners of its acting, even when we believe its structure to be healthy. People with slow pulses bear operations just as well as those who, in all other respects than that of their heart's action, are like them. And people with habitually rapid pulses are not bad patients if the rapidity of the pulse be not associated with some organic disease. Especially, you will find a considerable number of children and young persons, chiefly sensitive girls, whose pulses are rapid enough to frighten you. Observe whether the respirations are in the same proportion rapid; if they are not, the respirations, and not the pulse, must be your guide in judging what is the patient's state. Many a time I have pointed out to you a pulse beating 120 or 140 times in a minute, and said that it meant no mischief because the respirations were not more than twenty or twenty-five. And the same may be said of some who, with some strangeness of nervous system, have hearts that rapidly and widely vary their rates of acting. I had a patient, about twenty-five years old, with a pulse usually at eighty. I amputated his foot for strumous tarsus, and, in any mental disturbance, his pulse would be from 140 to 160, and was rarely under 120. His temperature ranged from 101° to 105°; but his respirations never exceeded twenty-four; and his recovery from the operation was quick and unhindered.

There is a set of cases in which you must always apply this rule of checking the indications of the pulse with those of the breathing—namely, cases of hæmorrhage. After large bleedings, when the patient recovers from their immediate effects, the pulse is usually hastened, and the breathing is retarded; so that with a pulse of 120 or more there may be not more than ten respirations in the minute.

Mere irregularity of the pulse, if it be habitual and not connected with valvular disease or degeneration of the heart, does not, so far as I know, affect the chances of recovery from operations. If the structure of the heart, as well as its functions, be disordered, you must judge according to such rules as I have just stated.

The influence of diseases, or rather of degeneracies, of arteries is not easy to measure, for the cases are comparatively few in which one would have to operate on patients whose arteries are degenerate, and in whom other important structures are sound. In the large majority of cases, degeneracy of arteries coincides with that of many other organs, and to these, rather than to the state of the arteries, the greater risks must be ascribed. In the large number of old persons in whom one has to operate for hernia, or for cancerous growths about the face and skin, one sees no reason to suppose that arterial degeneration is in itself a very grave matter; nor, again, in lithotomy. But the case is very different with amputation, especially of the lower extremity. Here one can have no doubt that the degeneracy of the arteries in the limb brings great peril with it. Primary hæmorrhage is rendered more difficult to control, and recurrent and



secondary hæmorrhage are more frequent, and all the worse because the patients are those in whom large losses of blood are dangerous. Moreover, if these risks are survived, the feeble nutrition of the wounded parts gives opportunity for spreading suppurations; and all the healing processes are slow; and hereby all the perils of the case are prolonged. And when you think of slow healing in any amputated limb, remember that, amongst all the textures of the limb, few are less favourably constructed for healing than are the tissues of the arteries. Their healing after wounds is, as you know, difficult and often interrupted even in the healthiest persons. Much more likely is it to be so in those whose textures are degenerate: indeed, if you look at a thoroughly degenerate artery, you must wonder that healing should ever take place. Out of this difficulty of healing comes a great part of the reasons why amputations of the lower extremities are so fatal—so nearly hopeless—when performed for injuries in very old people. I speak, here, only of cases in which there is general degeneration of arteries. Special dangers are connected with the disease of a single artery requiring ligature, as for aneurism; but into this, which is of itself a very large subject, I cannot now enter.

Diseases of the veins are so generally local that they have little bearing on any question as to the general risks of operations. I believe that it adds not a little to the risk of an amputation if you have to cut through varicose veins; but whether the diffuse phlebitis, which one has to fear, is more often connected with previously diseased veins than with previously healthy ones, I cannot tell.

Diseases of the respiratory organs bear with very un-

equal and uncertain force on the risks of operations. Of course one can speak only of the influence of the more common and chronic diseases ; for no one would think of operating during any acute disease, unless in dire necessity.

Chronic bronchitis, or that which has more often to be considered, a great tendency to bronchitis, is a grave complication ; not because it originates serious mischief, but because, if such mischief come from other sources, the bronchial difficulty adds very largely to the danger. I have never seen reason to believe that bronchitis renders patients more liable to erysipelas, pyæmia, or any such disease of the blood ; but if these happen, or indeed if any complication comes on after an operation, the imperfect respiration, the restlessness, the loss of sleep, and all the other troubles of bronchitis, diminish, by many degrees, the chances of recovery. And so, too, bronchitis must be feared especially in old people whose convalescence is not quite complete, and still more in those among them who have had erysipelas about the head and face. All these things must make you reckon that a patient habitually subject to bronchitis, and I suppose I may say also, a patient with emphysematous lungs, is one in whom all operations are extremely hazardous, and all the more so because few elderly people who have emphysematous lungs are quite sound in their other internal organs. The guards which you must set in any such case in which you have operated are evident. Especially you must look to the air ; for these are the cases, more than any others, in which you must try to accomplish the difficulty of providing air which is at the same time pure and warm and moist.

But the great interest of the diseases of the respiratory organs, in their relation to operative surgery, is in the question as to what may be done with a patient who has both phthisis and some local disease that can be surgically removed, or in any way cured, by an operation.

It has often been suspected that the removal or cure of some local disease of a phthisical person may badly influence the disease of the lungs. I know no sufficient evidence for such a suspicion, if it be meant that phthisis is made worse by the mere fact of the cure of any other disease; as if the diseased part were something like an excretory organ, the removal of which would throw an increased labour of excretion on the lungs or some other part. But, certainly, the fever and other accidents that may follow an operation may do special harm to a tuberculous patient. You saw, not long ago, an illustration of this. A man was under my care with a large chronic abscess in his axilla—a strumous abscess it might be called. It was emptied; and, after refilling and a second emptying, the sac was injected with diluted tincture of iodine. This caused, as we intended, inflammation of the sac; but with this there came general feverish disturbance, and through this, as it seemed, the man was found one day suddenly almost deprived of the power of speech, and then other cerebral symptoms followed, and after a few days he died insensible. His death was due to inflammation of part of his cerebral membranes, where tubercular deposits were found. These had been quiet so long as his general system was calm, but with the excitement of fever they became fatally active.

The fear of such a calamity as this should dissuade

b. 64  
you from all operations of mere convenience, and from all measures of what may be called decorative surgery in phthisical people; but it should not always dissuade you from operations that will cure diseases from which they suffer much, and by which their lives are wasted, as they are by fistula and diseases of bones and joints.

In these and the like cases, the main question is, whether the local disease—say, a diseased joint—is weighing on the patient so heavily, or aggravating his phthisis and shortening his life so much, as to justify an operation attended with more than the average risk of life and health. Of course, the weight of each local disease must be separately judged; but in reference to the risks of operations, cases of phthisis must be divided into two classes which, by comparison, may be called acute and chronic, or progressive and suspended, phthisis.

In all cases of acute or progressive phthisis great risk is incurred by almost every operation. The risks of the excitement of many days of feverish disturbance, and of loss of food, and of pain, and all such consequences of operations, are much above the average; to say nothing of the special chances of exciting some pneumonia. I cannot doubt that I have seen patients whose acute phthisis has become more acute, and others in whom the early stages of phthisis were accelerated, by the consequences of operations. Therefore I should follow the rule of never performing any considerable operation, if I could help it, on any person whose phthisis is in quick progress. Small things may be done on them for the relief of great distress or pain; but larger things had better be left undone, even if they should never be done at all.

The case is very different with chronic and suspended phthisis. In these it is often advisable to incur the somewhat increased risk of even a large operation, in order to free the patient from the distress and wasting of a considerable local disease such as that of a joint; and I should be disposed to say that it is always advisable to cure, if you can, a small disease such as fistula. I say if you can, for you will often be disappointed. In the tuberculous, as in the strumous, your wounds will remain for weeks unhealed and, perhaps, be unsoundly healed at last. Still, as to the mere question of operating, I have seen so many advantages accrue to patients with chronic phthisis from the removal of limbs with joint-disease that I am disposed to speak strongly as to the general propriety of whatever operations they may reasonably require. For instance, I still sometimes see a man about the hospital from whom I remember that, at least fourteen years ago, Mr. Stanley removed the left lower limb above the knee for disease of the knee-joint. He was the subject of chronic phthisis at the time of the operation; and the question was carefully discussed whether amputation should be performed on him. It was decided on; and though he has been phthisical ever since, and always very poor, yet he is still well enough to pursue some quiet occupation. I can hardly think he would have been doing so at this time, if he had had to bear at once the burdens of both tubercular lungs and a painful knee-joint.

There is a risk, common to the progressive phthisis and the suspended alike, that by long-continued confinement to one atmosphere, such as must happen after the excision of a

joint, you may put the patient into that state of quiet gradual impairment of health which is so terribly favourable to the progress of tubercular disease. Among all these risks you must make the best choice you can. And there is one point in relation to them about which it will be well to speak. Patients with long-standing strumous disease often look phthisical, whether they have tubercular disease or not. And, occasionally, you find one with cough and rapid breathing, and many other symptoms so like those of phthisis, that nothing but the most exact stethoscopic examination can persuade you that the lungs are in their structures sound; yet all these symptoms may be removed by the removal of the diseased part. Some years ago, I had a young lady for a patient with strumous disease of the knee-joint, of six or seven years' duration; and for many weeks she had had irritable cough at night, quick pulse, and rapid breathing, and all the signs which on a superficial examination might have led to the belief that she had phthisis. Yet no tubercular disease of the lungs could be detected, and I removed her limb above the knee. Up to the night before the operation she had been restless with coughing. After the operation it was doubtful whether she ever coughed again.<sup>1</sup>

<sup>1</sup> The question of operating for fistula in phthisical patients is fully discussed in Curling, *Diseases of the Rectum*, 1863, p. 102; H. Smith, *Holmes's System of Surgery*, 2nd Ed., Vol. iv. p. 832; Allingham, *Diseases of the Rectum*, 1871, p. 39; Erichsen, *Science and Art of Surgery*, Ed. 5, Vol. ii. p. 515. The general conclusion from their statements is similar to that of the lecture.

## LECTURE III.

CERTAIN diseases of the kidneys increase the risks of operations more, I think, than do the equally chronic diseases of any other internal organ. And the chief of these diseases are, first, those which are associated with the constant existence of albumen, or with the frequent or constant presence of pus, in the urine. In the first group, those of which we commonly speak as cases of albuminuria, the risks of erysipelas and of pyæmia seem to reach their climax. Not that I know this from having frequently operated on patients thus diseased. We are too cautious for this ; and, as you know, no patient with any chronic ailment goes from my wards into the operating-theatre without a previous examination of the urine. But you may learn it from the frequency with which accidents, such as scalp-wounds, compound fractures, and the like prove fatal in those who are subjects of albuminuria. All the dangers of which you are taught in medical lectures as to the tendency of albuminuria to generate pericarditis, pleurisy, and other internal inflammations, are proved emphatically when the patient's general health is disturbed by the consequences of injury, whether accidental or by design. I do not know by how many times the risks of a given operation are increased in any patient who has albuminuria, but I do know that you

will find it a safe rule never to perform any operation without an acquaintance with the manner in which the patient's kidneys discharge their function; and never to perform one, except under something like compulsion, on a patient whose urine is constantly albuminous. I do not say that you should never operate on such a patient, for the exigencies of the local disease may justify you, as they may justify you in operating in the advanced phthisis; but be clear that you operate against heavy odds; for even if the patient do not die with erysipelas, or pyæmia, or some other form of diseased blood, he will be apt to linger with a wound half-healed, till at last he dies of his renal disease just as if you had done nothing.

You saw a patient of mine, in whom we were certain of the existence of advanced granular disease of the kidneys, with albuminous urine, die last year. A poor woman who, ten years before, had one limb amputated below the knee for chronic ulcer of the leg, came with the remaining limb so badly ulcerated, and so hindering her poor means of living, that she begged me to remove this leg too. She had recovered from one amputation, and had such comfort in consequence of it that she begged me to give her the possible advantages of another, at whatever risk. After many vain attempts to improve or palliate her condition, I removed the limb; and then you saw how, week after week, the stump remained unhealed, and how, though she was relieved of pain, and remained hopeful to the last, she became more and more feeble and œdematous, and died, just as she would have died if she had retained her limb—in greater comfort indeed, but not a day later.



The suppurative disease of the kidneys which is of most importance in operations, is that which many call pyelitis—a suppurative inflammation of the lining membrane of the pelvis, calyces, and larger excretory ducts of the kidneys, extending to and widely disorganising their tubular structure. Its chief interest is in its relation to lithotomy and lithotrity and the various operations for urethral stricture. In all of these it is a complication of the gravest kind; and in all of them you must inquire carefully, not only into the mere existence of pus in the urine, but as to its quantity and probable source. If you can convince yourselves that it comes from one or both kidneys, you must regard the case, whatever be its nature, as one of more than ordinary gravity. Pus from the bladder is a comparatively unimportant thing; it means only a local mischief which local treatment may, perhaps, cure; but pus from the kidneys may, and commonly does, mean that these, which, in reference to recovery from operations, are, I believe, the most important excretory organs of the economy, are inadequate for their work. If pus is coming from them, they will certainly not be excreting their due quantity of the proper constituents of the urine; and, at any disturbance, the patient will be apt to become the subject of the so-called urinary fever, in which the phenomena of ordinary traumatic fever are seriously complicated by retention of the materials of the urine in the blood. Now, in reference to lithotomy and lithotrity, the evidences of suppurating kidneys may be such as to induce you to advise the patient rather to submit to his disease than to risk an almost inevitably fatal operation.

But supposing the case to be less grave than this, and that the removal of the stone is advisable even in the face of a large risk, you must choose between lithotomy and lithotrity. The choice is a very difficult one, and scarcely admits of general rules. If the stone be such an one as can be got rid of with one or two crushings, I would prefer lithotrity. If it would require twice as many or more crushings, I believe lithotomy would be better. If the bladder be sound, or nearly sound, so much the better for lithotrity; if it be unsound, like the kidneys, lithotomy will be the safer operation, and may even be indirectly beneficial by providing, for the time, a ready discharge of the pus through the lower part of the bladder.

For the various operations for stricture, in cases complicated with this condition of the kidneys, there is one very plain and obvious rule: being unfit for cutting, these patients should be treated with the gentlest possible means of other kinds. And, by the way, let me advise you, in every such case, to satisfy yourselves, before proceeding to mechanical treatment, that medicinal treatment is really insufficient. Every year teaches me more and more plainly that a very large number of cases of stricture of the urethra are really not dependent on any fixed condition of the urethra, but upon mere swelling of its mucous membrane—upon just such swelling as, with chronic catarrh, narrows or shuts up one or both nostrils. Manual surgery should find little or nothing to do in cases such as these.

It may seem to some of you absurd to include catheterism among the surgical operations in which the general condition of the patient's health can have any material influence. And yet I will not omit it, for it is a much more important affair than in the beginning of your professional studies you are likely to suppose. None of the minor operations of surgery is so apt to be followed by serious mischief. Very many patients with stricture of the urethra are unsound, or, if not unsound, yet with uncertain and capricious health—dyspeptic, or gouty, or with kidneys which, if not diseased, have been very often disturbed in their action, and are, therefore, unsuited for any constitutional disturbance. You should, accordingly, be at the least very cautious in the use of catheters upon persons of whose general health you know nothing, and upon those who are unaccustomed to their use, and upon those who come to you with strictures which are only somewhat worse than usual by reason of some passing disturbance of their health. And the rules of caution may be twofold stronger when you have to deal with old persons; for I am convinced that a first catheterism has been the first step towards death in many old men. You must therefore be on your watch for the general signs of health in patients on whom you must pass catheters, just as in those on whom you would perform any cutting operation. Look upon first catheterism as involving a risk of troubles about as great as that of amputation of a finger or a toe, or the removal of a small tumour, in a person of the same age. A small risk, you may say; but it is not less than two or three per cent.; and the calamity of death, when it does happen, is aggravated a

p. 69

hundredfold by its coming without warning, and from what seems to all an inadequate cause.

By the way, let me tell you of a symptom which must make you especially cautious if you have to catheterise elderly or old men. If they are passing large quantities of pale urine of very low specific gravity, whether containing a trace of albumen or not, they will be in danger from even the most gentle catheterism. For this condition of the urine is often due to some advanced defect of action in the kidneys, and catheterism will be followed by inflammation of the bladder, and the so-called urinary fever, and death will hardly be escaped.

As to diseases of the nervous system in patients who are to be the subjects of operations, I need hardly say that neither I nor any one can have considerable experience in relation to the influence of organic disease of either the brain or spinal marrow. We do not often operate upon mad people, or paralytics; and what I can tell you is rather in relation to the influence of minor or paroxysmal disorders of the nervous system.

The healthiest nervous system, in so far as it may be judged of by the mind, is that in which a patient faces an operation quietly, and with a courage which is not too demonstrative. Cases are told, and some of them, probably, are true, and I have seen confirmations of them, which would make it very probable that an abiding gloom, or fear of death, or a foretelling of death, or an utter indifference to the result of the operation, are very bad states. But, after all, your estimate of the risks on any such grounds as these must be a vague one. A better sign is the capacity for sleep. If a patient can always

sleep long at a spin, that is a good patient. In one of the most perilous operations for hernia with which I have had to do, a case in which the hernia had been reduced *en bloc*, and in which its return was effected with considerable force and disturbance of parts, I believe the patient owed his recovery more to his capacity for sleep than to anything else. He was a young bargeman, dull-witted and over-worked; and in his ordinary life sleeping whenever he was neither working nor feeding. Shortly after the operation, he went to sleep; and he slept sixteen hours out of the first twenty-four, and in a scarcely less proportion of his time for two or three days afterwards; and he recovered, although he had acute peritonitis, for which I thought it necessary to put on nearly a hundred leeches.

You may have to operate upon insane persons, and in them you will be able to confirm the rule that is established by the observation of all who attend them, that they bear pain and severe local injuries with less distress or ill consequences than the sane do; but that they recover with great difficulty from chronic ailments. Moreover, if you operate upon them you must take all the risks of their interrupting their own recovery by some insane whim or violence. I lost a patient after an operation for hernia through her first insanely refusing all food, and then insanely drinking enormous quantities of fluid, which brought on sickness.<sup>1</sup>

Delirium tremens is an indication of a complexity of risks. The man who has brought himself to this condition by hard drinking, unless indeed it be the result of

<sup>1</sup> See Note V.

extreme but rare intemperance, is in all the risks that belong to drunkards, and besides these, his restlessness will constantly increase the local danger of his wound. I would, therefore, never perform any large operation, except under compulsion, on a patient already the subject of delirium tremens. I can hardly imagine the serious accident of which the risk in such a patient would not be increased by any serious operation. But you are more likely to have to do with these patients when they become delirious after operations. In this case you must do the best you can for them, according to the general methods of treating the disease; of which general methods I will only say that, the less you rely upon opium and the more upon good food, the less you subject them to absolute restraint and the more to quiet nursing, the better will be your chance of success.

Very rarely, patients become insane after operations or accidental injuries, just as women do after parturition. I long thought that the absence of anything like a parallel to puerperal mania was one of the few points in which the consequences of operations differ widely from those of parturition, with which, in many important characters, you know that they closely agree. But within the last few years I have seen cases in which the parallel seemed to be completed. In one such case, within two days after a compound fracture of the leg, an elderly woman, who had never before shown signs of insanity, became maniacal with merriment and sleeplessness, and so died exhausted, the broken limb having apparently little influence upon her state. In another case of compound fracture the patient became insane within a few days of

the injury, and remained so till nearly the time of her complete recovery. I have known a case in which religious mania ensued quickly after lithotomy; another in which fatal melancholia followed an otherwise successful lithotrity; and another in which fatal acute mania followed erysipelas after a minor operation. Such events, however, are so rare that they need in no degree interfere with the judgment which you would form as to the propriety of any operation. Only under the strongest probability of insanity ensuing after it, would the fear justify one in dissuading a patient from that which might be necessary for his health or life.

Of the nervous, the highly neuralgic, the over-sensitive, and those with over-active brains and spinal cords, I have already spoken. p. 19

To conclude these questions of the influence of diseases of organs and systems on the results of operations, let me say somewhat of certain conditions of the blood to which I have not yet referred: chiefly of anæmia. It is not a bad condition in which to operate, unless it be, that, if anæmic patients fall into the risks of erysipelas or the like casualties, they are less likely to get out of them. Except for these risks, anæmic patients—who are best represented, perhaps, by those who have had large losses of blood from the uterus, or infrequent secondary hæmorrhage from wounded arteries—pass well through the dangers of operations. Their wounds heal slowly, but soundly; and they recover their health at least as well as any other anæmic patients do. I say expressly, ‘secondary hæmorrhage from wounded arteries.’ If you are dealing with a patient anæmic through secondary hæmorrhage late after

an amputation, you must not forget that the secondary hæmorrhage itself implies some defect of the healing process, which may be due to some general unsoundness.

It is a general rule, and I dare say a prudent one, not to operate during menstruation. The best time is believed to be within a few days after a menstrual period. I do not know the grounds upon which this belief rests; but they are just of that kind which it is at least prudent to respect, unless in cases of real necessity. Still, I have seen no mischief occur in the few cases in which, by oversight or necessity, I have operated either directly before or during a menstrual period. The cases have not been many, but in none of them has any mischief ensued. Not infrequently the occurrence of the first menstruation after an operation is attended with much more discomfort than the patient has commonly endured; and in those who are subject to menstrual distress, symptoms of general disturbance, enough to excite alarm, may be associated with it. The probability of the advent of menstruation is therefore always to be considered in the case of anomalous symptoms after operations. And it may be well to mention that, after operations on the genital organs and the breasts, it is by no means rare for the next menstruation to occur some days earlier than, in the ordinary course of events, it would have done.

As with menstruation, so, much more, during pregnancy, you would not willingly operate. And yet, with the exception of the danger of producing abortion, I know no facts that would imply a greater than the average risk; and if we may suppose a similarity be-



tween patients pregnant and those recently parturient, we may believe them comparatively safe. The repair of a rent perineum is as good an example of the healing of a bruised and lacerated wound as you could well find. And, altogether, the recovery of the enormous majority of parturient women from a condition which, in many respects, is like that which follows surgical operations, may prove them very safe subjects. However, on this point pure surgical experience neither is nor can be large. We can only say that, while, on the one hand, it would be mere recklessness to operate on such patients without good cause, yet if good cause for operating exists, they may be treated very hopefully.

When women are suckling they will bear operations with no more than the common risk that might attach to persons who may be in comparatively feeble health. The mere presence of lactation seems to have no bearing on the matter. But an exception must be made, I believe, for operations on the breast. I never did one and, if I can help it, never will; and to this conclusion I should have come even if I had not read a case of fatal hæmorrhage from a breast cut widely into during active lactation.

Now, I hardly need tell you that what I have said is a mere sketch of a very large subject—far too large for me to complete. I would have you all work hard at it; and a help to your doing so will be to change the usual mode of recording cases in which operations are performed. Usually, the account of the operation is nearly the end of the case, and is followed by a bare statement that the patient did well or ill. But, in most instances,

after an operation an entirely new case begins; a case, not of disease, but of injury. Accordingly, you should begin an entirely new record; and day by day you should set down all the events that follow the operation. Most of what I have told you is founded on the reports of a large number of cases which I have thus watched and recorded in a tabular form.

By this method of study you may gain knowledge of the highest importance in your practice. Not only may you improve yourselves in the treatment of patients after operations, but, by seeing how those with different constitutions or local diseases are differently affected by the operations, you may learn how to prepare them. Even from what I have said in these lectures you may see that there can be no one sufficient method of preparatory treatment; no single rule of purging or cramming, of starving or intemperance. The only single rule is, to put each patient into the best possible health for bearing injuries; and this, as I have said, is not always the best health for hard work or pleasure. If I may venture on a large general statement upon such a point, I will say that each man's capacity for bearing a surgical operation may be best measured by the power of his excretory organs in the circumstances in which the operation will place him. But the means of regulating this power, or of increasing it, must be as various as are the patients themselves. You must study the whole matter very carefully; and I hope I shall not have wasted either your time or my own if I shall have enabled you to start from the point which, after many years' work, I have reached.

## *THE CALAMITIES OF SURGERY.*

---

Two cases have occurred during the last week, which lead me to speak to you about what may be called the Calamities of Surgery, a subject of great interest, which you had better begin to study in early life ; for the study of it, if deferred to later life, only leads to reflections which are useless and distressing.

Last Friday a patient died under the influence of chloroform. It was given with all customary care, and there is nothing in all the circumstances to which we can refer that would imply that any thing was left undone that ought to have been done, or anything done that should not have been done. In the morning I had advised the chloroform for this patient, whose hand had to be put straight in order to avert the deformity that was being occasioned by disease of the wrist-joint. In the afternoon my house surgeon and a dresser were giving it, the pulse suddenly failed, and the patient sank and died. The friends would not allow a post-mortem examination, so the case affords us no useful information. But the fact that I want you to keep in mind is that notwithstanding all care, and all good intention, surgery

shortened to a few minutes this woman's life that might have lasted many years. At the very worst she would have gone about for the remainder of her life with a crippled hand; but she might have lived to a good old age. She died; and died without any warning of her danger.

This is one of the calamities of surgery. It is one of the many cases that lead one to wish that something might be discovered or invented which should combine what, I believe, was the greater safety of sulphuric ether, the first and original anæsthetic, with what is the far greater convenience and facility of administration of chloroform. But till that substance is discovered we shall have to proceed in surgery with uncertainty; or rather with the certainty, that occasionally, we cannot tell when, some one whose life we are trying to prolong or ease will die, and die by the means that we use to save him from pain.<sup>1</sup>

The other case was that of a man on whom I operated for the removal of the head of the humerus. He came, you will remember, with his right arm almost completely useless and often very painful because of an unreduced dislocation at the shoulder. The dislocation had been unreduced for, I think, eighteen months, and there was no hope of replacing the bone by any ordinary means. The man himself was urgent that the arm should be made in some measure more useful and less painful than he now found it, and accordingly we decided

<sup>1</sup> For the last two years I have used only sulphuric ether or, for short operations, nitrous oxide gas or ether-spray. The inconveniences of the ether are remedied by Mr. Clover's method of making the patients insensible with nitrous oxide and then giving the ether.

on what seemed to be the only thing for his relief, excision of the head of the humerus, which by pressure on the brachial plexus appeared to cause the pain. I did that operation; and a few days after it, pyæmia set-in, and in a few weeks the man died. There were many circumstances in this case to diminish the rebuke that one was bound to inflict upon one's self. The man was exceedingly urgent for the operation, and urgent rather against one's own suggestions; and, which was worse, after the operation, out of sheer wilfulness and obstinacy, he refused for a time all careful nursing, and absolutely refused his food, and so diminished greatly his chance of recovery. Nevertheless, the fact remains, that but for the operation this man might have lived for many years; he would have lived with an only partially useful right arm, but he would have lived, and been able to work and would have done some good for himself and others; but because of the operation instead of living many years he died in three weeks.

Cases such as these ought to be very honestly considered by us all; for I venture to say that there is no surgeon in large practice, no surgeon to a large hospital, who has not once or more in the course of his life shortened patients' lives when he was making attempts either to prolong them or to make them happier. And this, you will observe, is not merely the case with capital operations. When a patient submits to a large operation, it is always for the remedy of something that will render his life either very miserable or very short; and to escape so great distress, it is quite fair that a man should run great risk of his life. But these calamities occur

however rarely, in comparatively trivial cases ; when the operation is not done for any consideration of prolonging life, but, it may be, of making life somewhat happier, or somewhat more useful, as in the amputation of a finger, the tapping of an ovarian cyst, the tapping of a hydrocele, the division of a cervix uteri, the ligature of a pile, the division of a fistula, the removal of a small tumour from the face or scalp. I have known deaths from all of these, and if you were to go over the whole list of so-called minor operations, you would find that every surgeon of much experience has either had in his own practice, or known in that of others, one or more cases of each that have proved fatal. If any man will remove with the knife, in a hundred instances, cysts from the scalp, I will venture to say that he will have one or two deaths. If any man will take in succession an equal number of cases of ligature of hæmorrhoids, the probability is that he will have one or two deaths. The puncture of an ovarian cyst, tapping it for the first time, is fatal in three or four cases in every hundred. It is not necessary, however, that I should recount all these operations to estimate, what indeed it would be quite beyond my power to estimate, the average mortality of each ; that which is most important for you to understand is that, without very great care, you will certainly lose patients after minor operations, and be severely blamed for the loss.

Moreover, these deaths, though they are the worst, are not the only events that ought to be reckoned as

calamities of surgery. We ought to add to the list all those cases in which operations for comparatively slight diseases are followed by very serious illness, or by permanent damage greater than the disease, as when the removal of a finger leads to cellular inflammation of the hand and permanent stiffness of some part of it, or when after circumcision sloughing ensues, or after the removal of a scalp-cyst dangerous erysipelas.

All these things might be matters of no more than passing regret to us if they were altogether inevitable; if we could say that everything of this kind is purely accidental; a thing which no foresight could have averted; which came upon us out of circumstances over which we had no control whatever. But the truth must be fairly confessed; that these are not always accidents; and that often, when the calamity has occurred and we look back on the events that preceded it, we can find that the disaster was the result of some oversight, or of some carelessness, or want of judgment or of skill. Do not let me seem to imply that there are no cases of this class which we may call purely accidental. Calamities in surgery may come of things which nothing far short of omniscience could have detected beforehand. A fever may fall upon a man after an operation; for even minor operations put persons into conditions in which they are more susceptible of the infection of fevers than they were before.<sup>1</sup> We cannot guard against that. Tetanus may ensue after a minor operation; we have no power to avert that, or even, in the smallest degree, to apprehend

<sup>1</sup> See *Essay on Scarlet Fever after Operations*.

its approach. These and other causes of the kind and, still more, the negligence and recklessness of patients, would diminish by a considerable number the list of calamities for which we may seem blameworthy; but there would still remain more than facts enough to serve you for a warning that you can only by exceeding watchfulness avert the calamities that are apt to occur through a comparative want of care, or of skill, or of judgment.

Let me tell you now some of the cases that I have known. They were happily not all in my own practice, and I need not say which were and which were not.

A man had albuminuria, and he had a small cyst on the scalp which it was thought advisable to remove. It was removed, and erysipelas set-in and of that he died. And then it was found that he had albuminuria, a condition which made him so liable to erysipelas, or to pyæmia, or to some form of blood-poisoning, that if it had been ascertained beforehand no prudent surgeon would have thought of operating.

Another person was a drunkard, on the sly, and yet not so much on the sly, but that it was well known to his more intimate friends. His habits were not asked-after, and one of his fingers was removed because joint-disease had spoiled it. He died in a week or ten days with spreading cellular inflammation, such as was far from unlikely to occur in an habitual drunkard.

Another patient was very liable to large bleedings from small incisions. This was not asked-after; some small incision was made and he died through the feebleness consequent on hæmorrhages.



Another had a small tumour of the face, and was so feeble in his ordinary condition of health, that more care would certainly have suggested that he would not bear even a slight shock and small amount of hæmorrhage. He sank after the operation.

In another case, sutures were, by plain mistake, put through the aponeurosis of the external oblique muscle after ligature of the external iliac artery. Infiltration of the first products of the inflammation following the wound ensued; the suppuration spread far and wide, and the patient died through its effects in a few days.

An old man, with an irritable bladder, and who was passing a large quantity of urine of low specific gravity, came complaining of certain symptoms of stone. He was carelessly and rather roughly sounded for stone, went home, had a shivering fit and acute inflammation of his bladder, and died in ten days. The sounding would not have been done if due care had been taken to examine previously the condition of his urine.

Another man in a similar condition had an inflamed urethra. He was catheterised, acute inflammation of the urethra followed, and then retention of urine, acute inflammation of the bladder, and through that, death. He ought not to have been catheterised until after some few days of rest. *p. 35*

And so I might still tell of cases operated on, in which, after the event, it was discovered that more careful previous consideration of the case, or more skill, or more after-care would have saved a life that was lost, or would have averted some dangerous and painful illness or some permanent damage. It does rest upon us all

to consider these things very carefully. We are all the more bound to consider them honestly and, if need be, with self-reproach, because these calamities are not such as the public can judge of. They are not instances of those gross negligences and carelessnesses which can be punished legally and openly. Nor is it indeed at all advisable or desirable that the public should know of these cases. They could not help us, and they would form very wrong judgments about them. Indeed, in such cases the public just as often judge wrongly as rightly, and accord credit where discredit is due. I remember once, when assistant-surgeon to the hospital, I divided a prepuce that was acutely inflamed; an operation that ought not to have been done. The patient went home and bled furiously from the vessels of the foreskin; and then followed acute inflammation of the whole integument of the penis and of the scrotum, and sloughing extended to his groin. He was admitted into the hospital, and passed through great peril of his life. He did not die, but he was very nearly doing so, and he was long ill and in misery. Four weeks after, a man came to the out-patients' room to return thanks for the help that I had given him. I did not know him at first, and I said, 'What did I do for you?'

'Oh sir,' he said, 'if it had not been for that cut you made, I should have died.'

That was his firm impression; that if I had not made the incision, which was the sole source of his danger, he must have died of something very terrible which that incision just prevented.

Another case bearing on the same point, of the mis-

taken judgment of the public, was this ; of which, however, I only know by hearsay. Many years ago, a distinguished surgeon at one of the London hospitals, admitted, as one of the casualties of the week, a gentleman with a strangulated inguinal hernia. With great carelessness this surgeon cut right into the intestine, in the middle of the hernia. Fæces flowed out and all the miseries followed of a piece of intestine projecting from the wound and discharging its contents. The case excited considerable attention ; it was always carefully watched and at last the patient recovered. His impression of what had happened was that he had, by this very incision into his bowel, escaped some dreadful calamity ; and that nothing but the most extreme skill could have either made the incision into the bowel or recovered him after it ; and he presented the surgeon who had done this for him with a very handsome gold snuff-box. The surgeon proved himself quite worthy of the gift, for he used to show this gold snuff-box to prove the gratitude which the officers of his hospital were in the habit of receiving from the patients upon whom they conferred the great benefits of charity and skill.

We must then, I repeat, blame ourselves for these things and scrupulously watch ourselves ; for the more the sufferers from these errors or defects of ours are helpless, the more it rests upon our consciences to stand in their place and help them. I will therefore take this occasion for putting before you some rules which you had better follow ; rules by which you may be able to avert from yourselves the regrets of these calamities of surgery.

First of all, the consideration that you are liable to these calamities should be an incentive to the most earnest and continual study of your profession, that you may avert all avoidable ignorance ; and to constant discipline in watchfulness, that you may overlook nothing that can contribute to a patient's welfare.

And you should study very carefully all of what are called the minor parts of your profession. Minor they may be with regard to each instance in which they have to be practised ; but they become major if you multiply those instances together. I refer chiefly to the necessity of cultivating skill in dressing wounds, in the completion of operations, in the looking to all the seemingly little things that, after an operation, minister not only to a patient's comfort, but to his welfare. Among the cases that I have to regret is one in which a patient of mine died from a piece of plaster being put on in the wrong direction. A young man had a tumour removed from deep in the back of his thigh ; and at the end of the operation, I know not whether by myself or some one else, a broad strip of plaster was put round the thigh, completely encircling it, and over that, for some further means of security, a bandage. Next day the limb was swollen, but apparently not much more than it might have been swollen, from ordinary inflammation following an operation. But, the day after, the limb was swollen much more ; and the day after that, there was acute inflammation of all the cellular tissue about the wound ; and then came hæmorrhage ; and then the man sank and died. The sole cause of his death was the strip of plaster which was put round his limb and not removed

for two days. From that time to this, I think no one has ever seen me put a strip of plaster round a limb, unless spirally. Small as such a thing may seem in the art of dressing, it cost that man his life. I tell the case that I may in some degree atone for the fault by hindering you from incurring the same risk. Attend then carefully to what are called the minor things of surgery ; not merely to skill in operations, large or small ; learn the habit of entering completely and fully into everything that may minister to the safety and comfort of the patient.

Next, let the liability to these calamities move you never to decide upon an operation except in consideration of the patient's interests alone. Let no thought of your own interest, or of your own reputation, have any place in the consideration of what is to be done for this or for that man. If an operation is not purely and wholly for the good of a patient, it should on no consideration whatever be done. When an operation is decided on, you may add a desire for your own reputation to the motives that will induce you to do the best you possibly can for the patient ; but this, which is a very fair motive for the careful performance of an operation, is a very foul one in determining whether an operation should be done or not. \* I can imagine nothing that would add more to the remorse of a man who had fallen into one of these calamities of surgery, than the recollection that he proceeded to the operation with some consideration of his own interest or of his own reputation.

Next, never decide upon an operation, even of a trivial kind, without first examining the patient as to the risks of his life. You should examine him with at least

as much care as you would for a life-insurance. It is surely at least as important that a man should not die, or suffer serious damage, after an operation, as that his life should be safely insured for a few hundred pounds. Before any man's life is insured, he undergoes an inspection of at least one medical man, and possibly of a whole board of directors. At least an equal amount of inspection ought to be made for every man who is to be submitted to an operation : and this involves a general fair consideration of what the man's present health is, how he looks, what is his pulse and his breathing, what he is in respect of temperance, what of exercise ; whether he has ever had any serious illness, whether he is liable to minor illnesses : in short, in regard to what this sort of examination should be, you may take for guidance the papers which insurance-offices give to any one who proposes to insure his life. They ask a variety of questions which enable you, on the whole, to judge very fairly what are the chances of a man living out to the full length of life, and all those chances should be considered before even a minor operation, which is not of urgency, should be done. And, in this respect, do not too soon take examples from your seniors, myself included, as to the manner in which we judge of a patient's fitness for an operation ; because, what we can do in a comparatively short examination, you cannot do. The ability to see quickly what is the general condition and character of a patient's health is the result of very long-continued study. It would be hard to tell you what are the successive stages of knowledge through which any man of experience passes before he comes to say, almost at a

glance, what is the general health of a person presented to him ; but the ability to do this is the result of several stages of knowledge, each of which has been carefully passed-through. It is the same kind of knowledge which you see every successful man exercising in his own craft ; one of those special skills, only to be acquired by careful and long-continued study ; and till, by experience, you have attained such skill as to be able to decide questions of this kind in surgery quickly, you must compel yourselves to decide them slowly, and with a very careful study of each case that is presented to you.

If I were to count the number of preventible calamities in surgery that I have known, I should find the majority of them due to the oversight of personal defects in the patients operated on ; defects in the habits, the constitution, or the previous diseases, which ought to have been ascertained before the risk of the operation was incurred.

But, again, when you have decided on an operation, never make light of it. Never talk to the patient flippantly about its being what is called ‘ nothing ; ’ a mere snip, a mere cut, a mere this or that. It never is so to the patient’s own feelings ; to patients an operation is always an important matter ; and they are rather aggrieved than pleased on being told that it is ‘ nothing.’ You need not alarm a patient ; you may say that the risk of an operation is not greater than that which he would incur for much less sufficient motives. Most people, for pleasure’s sake, incur larger risks than they would in a minor operation. They travel by express trains and they climb Alps ; they hunt and shoot ; and for no adequate motive they run

across the crowded London streets ; and for mere pleasure they expose themselves to dangers of fatigue and cold and indigestion and other risks of illness. So you may fairly guard yourselves, and give your patients a just measure of warning, by saying that the risk of a proposed operation is not greater than the risk of this or that thing which they willingly do for amusement. But, unless you are prepared to say that the risk is not greater than ought to be incurred for the good which may be expected to follow, you ought not to do the operation at all.

As to the amount of good which is to follow an operation, the surgeon alone can in most cases estimate it. In most cases, therefore, we must take the whole responsibility of operations, for it is only on our statements that patients can rely in judging whether they should submit or not ; and most of them, even when they have our statements before them, are quite incapable of clearly and soundly judging. But there is a class of operations, in what I have called decorative surgery, in which we may justly put upon patients a much larger share of the responsibility than they ought to bear when the question is one of life or death. When people want, not to be cured of absolute deformity which hinders their success or comfort in life, but to have this or that done of which it does not matter whether it is done or not except for some personal vanity, let them understand that the operation is not altogether free from risk, and then let them take the whole responsibility of the matter.

Supposing, now, an operation to be decided on, there



are some rules to be observed with regard to its performance, which may be useful in averting calamities.

First, don't be too ready to operate in your own houses or in your own rooms. It is a thing too commonly done and always involves a risk which should not be incurred without need. Mr. Thomas Blizard, who was in his time one of the most distinguished surgeons in London, when he began practice in the city, was once consulted at his house by a merchant of great wealth and influence, who thought he would patronise the young man ; for he knew his family. He called on Mr. Blizard one morning, showed him a cyst on his back, and asked him to remove it ; and he removed it then and there. The merchant went away, caught cold, had erysipelas and died in ten days. I do not know what amount of unhappiness the case excited at the time ; but I know that Mr. Blizard told it in after life with the greatest regret ; and that, as a measurable amount of part of the calamity to himself, his income fell 50 per cent. after that year and was not quickly recovered. It rose to a very large amount before he retired, but 50 per cent. for a year was the amount of damage which he sustained by not observing the rule, of not operating in your own rooms without a real need of doing so. You may do an operation there, with all dexterity and care ; but you do not know what the patient will do afterwards. Especially, let me advise you not to sound a patient for the first time, or to pass a catheter in a man of questionable general health for the first time, in your own room.

Again, do not operate upon even small inflamed parts. /

The mention of that last case of an encysted tumour reminds me of the frequency with which patients come to you for similar operations, to be done because the parts are giving them more trouble than they used. A man will bear a little tumour, or a small cyst, or a small pile, so long as it is not inflamed; but when it inflames it teases him, and he asks to have it removed with all speed. Don't do it. The risks of operating on an inflamed part are manifold, and much greater than the risks of operating upon one that is quiet. A man came to me in the out-patients' room, while I was assistant-surgeon, with a cyst on the front of his abdomen, acutely inflamed. I removed it then and there. Three or four days afterwards he was admitted with inflammation of the cellular tissue and infiltration of putrid matter under the skin; and that was followed by phlebitis, and that by pyæmia, and that by death. The man was dead in three or four weeks after a very small operation for the removal of a cyst from the front of the abdomen. I operated on an inflamed part; I did wrong. If the man had been put at rest and the inflammation cured, the cyst might in all probability have been removed without risk.

You may sometimes see in my wards bad cases for which I am only indirectly responsible, the 'surgery-cases' as they are commonly called, in which fingers are removed some days after being crushed; removed while they are still inflamed; and then the patients come into the hospital with inflamed hands; with cellulitis of the hand and of the fore-arm. I am bound to say that I have not seen any of them lately; but I have a clear recollection of several of them in former years; and of the

long pain and illness and disability of the hand which were caused by the neglect of this rule of caution.

For another rule, always look carefully to the condition of the room or the house in which your patient is living; and set aside, so far as you possibly can, all the risks that may be thus incurred. Look to the sanitary arrangements about the man. One of the greatest annoyances that I have ever had was in the case of a gentleman whose prepuce I divided for phimosis. Severe it was, and necessary to be cured. I divided his prepuce, and no more; neither put-in a suture, nor did anything that could disturb the healing of the wound. The cut was followed by sloughing of the integuments over two-thirds of the penis and very nearly the whole of the scrotum. After having done the operation, I found, on looking-about for what could have caused all this misery, that the patient, although living in a very good hotel, had a water-closet in his bedroom. I had looked round the room, not carelessly, before the operation, to see whether there was anything that could bring him into mischief, and all had appeared fair. But what I had taken to be a book-case, or some article of furniture of that kind, was a water-closet, which, with the nastiness with which some London hotel-keepers provide for the convenience of their customers, had been put into the bedroom. And this is not a very uncommon thing, even in the better class of lodging-houses and hotels in London. Because every man, in coming to his rooms, likes to have for cleanliness his own water-closet, or at least to have one to every suite of rooms, the landlords put one at the

side of a bed-room. Where a wardrobe should stand, they place a water-closet, and they front it, and make it look as like a decent piece of furniture as they can. It was through this scheme that the poor fellow lost the integument of his penis and scrotum. Look therefore, I repeat, very carefully to all the sanitary arrangements that can come within your power, even among the better class of houses and hotels.

Then there comes this rule;—never do an operation if you can cure the patient by any reasonable medical or other means. There are a considerable number of operations done for cases that should not be operated on at all; and these are amongst the very class in which the mortality of minor operation comes. An instance is in the case that I just spoke of—of phimosis. It very frequently requires operation in children, especially if the orifice of the prepuce be very narrow; for this materially impairs the action of the bladder, the patient having to pass water against a continually too great obstacle. But among adults, many cases of phimosis can be cured without operation. The prepuce can be gradually and slowly drawn back; and by daily drawing the prepuce against the glans, thus widening its orifice, it may be fully distended without the need of an operation. Again in cases of varicocele: patients come to you, begging for cure; and nearly all of them are merely nervous, hypochondriacal, morbidly-brained people, who are in fright about varicoceles, which they suppose to be the causes of impotence and wasting of the testicle. Now, no varicocele, to the best of my belief, ever did cause impotence or waste a testicle. But the operation for varicocele is not altogether free

p. 274

from danger. A most skilful operator for this disease reported, the other day, a case in which he himself operated and the patient very nearly lost his life. Once also, I saw a young man with pyæmia following an operation for varicocele, which had been done very skilfully. Through this pyæmia he had acute suppurative inflammation of his right shoulder, his right knee, and his left hip; and they were all spoiled, and he very nearly died. I doubt whether ninety-nine operations for varicocele would do good enough to balance one such calamity; for of the ninety-nine operations the majority would have been quite unnecessary. Varicocele can, in a vast majority of cases, be perfectly well managed with a ring, or a truss, or suspensory bandage and cold water, and the operation may be wholly dispensed with: the more properly because varicocele is not a mischievous disease, and has nothing to do with the impotence or other sexual distresses that patients ascribe to it.

So also for urethral stricture. Among the operations that I have known fatal is catheterism, and that not very rarely. Don't be catheterising patients for supposed strictures till you have ascertained that they cannot be cured medically. Under the general name of stricture of the urethra are included several conditions which are far better curable by medicine and diet than by any form of surgery; mere transient or chronic swellings of the mucous membrane of the urethra, to be treated medically and treated by diet. Catheterism is nothing but mischief to them.

Then, for another rule. If a disease can be cured by a bloodless operation as well as by one with cutting,

p. 43

choose the bloodless. This may be done in many more instances than you are apt to think. The cysts of the scalp have, as I have said, a mortality of some two or three per cent. at least, and the mortality in them is of peculiar distress, since at the outset, except for appearance, these cysts might be left. They are commonly removed when, being small, they are sources of but trivial trouble ; and yet they have this rate of mortality. These may all be removed with caustic. I do not say that you never should remove by incision a cyst from a patient's scalp ; but you never need do so ; and if the patient be one in whom the risk of an operation is in any degree greater than the average, you ought to remove the cyst with caustic.<sup>1</sup>

Ligature of hæmorrhoids, again, is an operation sometimes fatal. Sir Benjamin Brodie told me that he had lost three patients in his life from it. That might be a very small proportion of the number of patients he operated on ; but he never ceased to speak of it with great regret. I have not lost a patient by the operation, but I have had two in whom it was followed by pyæmial abscess and serious risk of life. Doubtless the ligature of hæmorrhoids may be performed in the vast majority of healthy persons with complete impunity ; and doubtless in many it is the best operation for the cure of the disease, and should be performed. But in many cases,

<sup>1</sup> The best method, I think, is to paint the skin over the cyst with the strongest nitric acid ; to paint it thoroughly, in and in, as if with iodine. After this small cysts may be left, and the skin and they will shrink and be cast off like scabs. Large ones, when they begin to separate from the subcutaneous tissue, may be pulled out ; and the cavities they leave will heal with water-dressing.

the cauterising of hæmorrhoids with nitric acid or the actual cautery is quite as successful as the ligature ; and therefore you should not tie piles in any person who would incur even the least more than the ordinary risk from the operation unless you are sure that cauterising will not cure them.

Another class of cases in which I remember some calamities is that of the little cancerous warts and ulcers that occur about the face. These may be commonly removed in healthy persons without risk, but in the unhealthy and the feeble and the decrepit they cannot. They may be removed as well by caustic as by the knife. The caustic is as complete in its action, and, with due care and experience in its use, can be employed just as readily and quickly as the knife. Have it therefore as a general rule, for which however I give no more special instances than these, that where the risk of a cutting operation would be appreciable, and you can substitute for it the use of caustic or anything that shall not be cutting, you should do so.

Another rule : Be quite clear about carrying out carefully the last stages of all operations. I suspect that everybody in operating, when he has passed through the sort of mental tension in which he performs the most difficult part of what he has to do, when his attention has been completely occupied in some difficult task to be achieved, next feels his mind relaxed, his attention less keen, less ready for exercise than it was before. Be sure that these are times of danger to your patient. As soon as the attention ceases to be as keen as possible, you are in risk of doing some mischief. That strip of plaster

that was put round the man's thigh was an instance of this. I had got through an operation of considerable difficulty, and the whole trouble seemed to be at an end : I was less on my guard than I was before ; and I overlooked that strip of plaster, which, had it come in the middle of the operation, I should assuredly have at once seen and corrected.

I have heard of a case in which a sponge was left in an abdominal cavity after ovariectomy ; and of another in which a broken-off blade of a pair of bone-forceps was left deep in a wound made for the removal of dead bone ; but a worse result than in either of these followed an oversight in a case of my own. A man's nostrils had to be plugged after an operation for the removal of a fibrous polypus from his nose ; an operation of much difficulty, and much doubt in its course as to what next should be done. I had completed all that seemed most difficult and important ; and then came the condition of relaxed, comparatively inattentive mind ; and one of my colleagues who assisted me put a plug into the posterior nares. Through inattention the plug was made without a string attached to it with which to draw it out again. I noticed it directly afterwards, but the thing was done, and it was said that it was not worth disturbing the patient again to alter it. But the patient died of that plug, for it could not be taken out of his nostrils, except by thrusting it from before ; and thrusting it in front brought on another hæmorrhage and that hæmorrhage brought on delirium, and the delirium, exhaustion ; and so through the lack of a piece of string in the right place the man died. It was omitted only because at the conclusion of the operation our



minds were less intent than at the beginning, less watchful. All the danger seemed past just when still greater danger was at hand.

One more rule I will give you. Look very carefully to your apparatus. I have no doubt that you will look very carefully to the edges of your knives and your saws and all things that are mighty to handle ; but look to the plaster, look to the ligatures and the sutures, and all the things which are commonly called minor. When I have seen Sir William Fergusson and Mr. Spencer Wells operate, I have never known which to admire most ; the complete knowledge of the thing to be done, the skill of hand, or the exceeding care with which all the apparatus is adjusted and prepared beforehand. The most perfect plaster, the most perfect silk, not one trivial thing left short of the most complete perfection it is capable of. I have no doubt that the final success of their operations has been due just as much to these smaller things, as to those greater things of which they are masters. In contrast with their work, I have seen operations performed with great skill ; and a piece of bad plaster or bad silk, or something left at home, has put the patient's life in danger. Not long ago, I remember, a patient had secondary hæmorrhage after an operation, and the reason was that the sticking-plaster was bad. One of the things that was to control the hæmorrhage was pressure by plaster ; the plaster slipped ; and the patient ultimately died of hæmorrhage. Many an operation has been spoiled by bad silk, or bad needles, or bad something that was thought too trivial for care. Surgery could

supply only too many illustrations of the wise proverb against those that despise small things.

These are a large number of rules for you to observe ; and yet there is no one of those which I have laid down which is not necessary, I will not say for ordinary success in surgery, but for the avoidance of great calamities. Nay, there are more rules than these, which you will soon learn for yourselves : and now, if, after taking all these cares, you still meet with calamities, you may meet them with an honest consciousness that you are really able to say, what people are too ready to say in a mere useless pretence, that you did your best. One continually hears it said, ‘ I did my best ; but these things will happen ; ’ and yet what a man has called ‘ doing his best ’ was not doing so well as he had done before, or so well as he will do next time. Let me urge you against this. The intense dissatisfaction that follows these failures makes one very ready to adopt any excuse that can be given. Men constantly say, ‘ These things have happened to better men : they have happened to this or that person of distinction ; so I need not be surprised at having them. ’ There is no more miserable or false plea than this. Why, if you know that another man has fallen into a fault, the blame for your falling into the same ought to be much greater, not less. If any man had run into a pit unawares, and you, having heard of it, had run into the very same pit, it would not exculpate you to say that a better man than yourself had run into it ; surely the blame to you would be the greater. But there are some people who seem to have a happy art of forgetting all their failures, and remembering nothing but

their successes, and, as I have watched such men in professional life, years have always made them worse instead of better surgeons. They seem to have a faculty of reckoning all failures as little and all successes as big; they make their brains like sieves, and they run all the little things through, and retain all the big ones which they suppose to be their successes; and a very mischievous heap of rubbish it is that they retain.

There is but one thing that I am afraid of in telling you the risks and dangers that I have met with; and that is, that you may over-estimate the probabilities of them, and be afraid of the responsibility which you must undertake. Well, after all, this incurring of responsibilities is decided rather by temper than by knowledge. There are some people who are ready for anything; some that under difficulties shirk all they can. But of this I am quite sure, and you will see it proved not only in surgery but in every calling, the men who are most ready to take responsibilities, and to bear them lightly, are those who can best estimate beforehand what are the risks and the difficulties they incur; the men who, knowing what is to come, can therefore face it most bravely and with most success.

Therefore study fairly and fully, beforehand, all the things that may occur to you, in an operation and after it: make yourselves, as far as you can, masters of each case, and generally masters of your whole profession; and then you will neither be afraid of your responsibilities nor ashamed of your failures.

---

The risks and calamities of operations have been reduced even during the few years since the foregoing lectures were given, but they still are too many and too great, and I venture to hope that the lectures may help in still further reducing them.

When I recollect the improvements in surgical practice of which I have been a witness, none seem to me more gratifying than those which have not only diminished the mortality after operations, but have diminished the fever and all the other troubles apt to follow them. No one, I presume, would venture to assign to each improvement its share in the diminution. Mr. Lister's practice and promulgation of his antiseptic treatment; Mr. De Morgan's use of the chloride of zinc; silver-sutures, acupressure, torsion, carbolised catgut-ligatures, Esmarch's elastic bandage, a steadier belief that the healing of wounds is a natural process that needs only to be undisturbed; these have been the chief means of saving life; and with them may be counted the constantly increasing care for healthy arrangements in hospitals and houses, and for cleanliness and simplicity. But I suspect that another thing has been more potent than any one of these, namely, the increase of the care in watching all patients submitted to operations, and in rejecting the unfit. There has been an admirable rivalry for success; treatment after operations has come to be the most interesting subject of surgical study; and everyone proposing or adopting an improvement has watched personally and closely the patients submitted to its use. The result is, I believe, that the total mortality and all the illnesses after operations of all kinds are not more than half as great as they were thirty years ago. But study and care may make them still less, and will certainly do so if no part of the study be deemed trivial.

*ON STAMMERING WITH OTHER ORGANS  
THAN THOSE OF SPEECH.*

---

THE characters of stammering in speech are so well known, and may be so often studied, that we may take this form of disease as the type of a class including similar affections of other organs than those of speech, and may apply to all the same generic name of 'stammering.'

Stammering, in whatever organs, appears due to a want of concord between certain muscles that must contract for the expulsion of something, and others that must at the same time relax to permit the thing to be expelled. Ordinary stammerers cannot at the same time regulate the contraction of the muscles of expiration for the proper expulsion of air, and the relaxation of those of the glottis, or (in different cases) of the tongue or lips, for permitting the expulsion of the air while it is being made vocal and articulate. Numerous as are the varieties and modes of speech-stammering, this discord of muscles is in them all. Its dependence on the nervous system and the mind is in fact plain enough, in theory very difficult. Perhaps it may help the study of speech-stammering, if similar disorders be watched in other parts of the body; but at present I want only to point out the facts for their importance in our practice.

Stammering urinary organs are not rare ; and they may be known by observing, sometimes in the same person, the exact parallelism between the difficulty of expelling urine and that of expelling the air in the ordinary speech-stammering. The patient can often pass his urine without any trouble, especially at customary times and places ; and, when he does so, the stream is full and strong, and he has ‘nothing the matter with him.’ But, at others times, he suffers all the distress that he might have with a very bad urethral stricture. He cannot pass a drop of urine ; or, after a few drops, there comes a painful check, and the more he strains, the less he passes ; and then complete retention may ensue, and over-filling of the bladder. In these characters, the case may closely resemble one of the ordinary instances of so-called congestive stricture, in which rapid swelling of some part of the mucous membrane narrows or closes the part of the canal which is least capable of distension. But the circumstances in which the difficulty arises are, in the two cases, very different. The stammering with the bladder occurs in just the same conditions as the stammering speech. There are few stammerers in speech so bad but that they can talk or read fluently when they are alone or with those whom they are most familiar with, or when they are entirely thoughtless as to their manner of speaking. Their worst times are when with strangers, or with persons or in places that are associated in their minds with stammering. It is just so with the bladder and urethra. One patient told me that, although he could usually pass urine well, yet there was one person with whom nothing could induce him to walk,

because once, when he was with her, he wanted to pass urine, retired, and failed. His experience of the effects of association of thoughts made him sure that, if he were again in the same circumstances, the same distress would come on him more intensely. Another, a clergyman, always passed a catheter before going into his pulpit. He had often had nervous troubles with his bladder; and once or more, having felt a horrid need of passing urine while he was preaching, he found himself, at the end of his sermon, unable to pass any. He said he felt sure that, if he were to go into his pulpit without the assurance of an empty bladder which his catheter (a No. 12, passed easily) gave him, he should be pressed with the desire to pass urine, and then should have retention. As a speech-stammerer might be unable to utter a word, so would he be unable to pass a drop of urine. Again, another patient has described himself as driven to all kinds of devices to bring about the association of ideas or of actions with which he best succeeds in emptying his bladder. He must walk up and down his room, and stand or sit in some customary singular posture, and then be very careful not to direct his mind either too much or too little to what he has to do, and then to let the urine run as inconsiderately as he can.

I might add many more notes of the seeming caprices of the stammering bladder and urethra; but it may suffice to say that nearly all the phenomena of stammering speech find in them their parallel. In both alike are observed the strong influence of habit and of association of ideas; the effects of transient changes in the vigour of the nervous system; the need of a justly and

yet almost unconsciously measured exercise of the will, that it should be neither more nor less than enough; and the influence of distraction of mind. And equally in both classes of patients may be noticed the coincident general sensitiveness of the nervous system, and the family-relationship with persons who suffer various other forms of nervous disorder.

One or two differences may, however, be noticed between the urinary and the speaking organs, in their respective stammerings. The former cause more pain. The bladder, unable to expel its contents, becomes for a time the seat of the feelings of distress, tightness and urgent need of emptying, which are felt in more simply mechanical retention of urine; and it becomes more sensitive and more irritable, but probably rather through the constant and earnest attention of the mind, than through any change in its own condition. In cases of long-continued urinary stammering, some of which began in very early life, and some of which I have known for many years, I have seen no indication of any supervening organic disease. After years of trouble, nothing appears wrong but the manner of action of the parts. But though, so far as I have yet seen, their stammering does not produce structural disease of the urinary organs, yet, in many instances of their structural diseases, the urinary organs become very 'nervous'—that is, very sensitive and disorderly in their nervous systems; and, in this state, they imitate some of the faults of stammering. Thus in stricture, especially from congestion of the mucous membrane of the urethra, patients feel that a great part of the difficulty of passing urine is due to their inability



to regulate and harmonise the urinary muscular acts. As a man said to me, 'If I could stop the straining, I could do it; but, as soon as ever I strain, the spasm comes-on.' By this he meant that he could not duly moderate the action of the expelling muscles; and that, as soon as these began to act too vehemently, those that close the urethra would act in spite of him. Just so a stammerer sticks fast in speech; and the faster, the more he strains. And, in similar likeness to stammerers, we may see that most patients with long standing obstruction from stricture or diseased prostate, or whatsoever else, resort to habits or postures, or mere tricks, by which they may gain the advantage of association of ideas for aiding the successful use of their muscular power.

The treatment of stammering urinary organs has difficulties similar and equal to those of treating stammering speech. The patient must try to educate himself to a calm control of his muscular power; and, on any occasion of failure, must get what help he can from such mental tricks as I have referred to. He should evade all risks of difficulty and all the conditions in which he has suffered his worst failures. He should do anything rather than fail to pass his urine. He should not always yield to the first impulse to pass it, but should try to regulate the actions of the bladder to certain fixed hours of the day. And especially he should learn to use a catheter, not only that he may thus relieve himself in case of absolute need, but that he may be free from the enervating dread of helpless retention. He should keep his whole economy, and chiefly the secretion of urine,

in the healthiest state he can ; for, like all other stammering, or in even a greater degree than any other, that of the urinary organs is influenced by the condition of the general health.

The characters of stammering with the organs of deglutition may generally be recognised by their likeness to those of urinary stammering. They have to be distinguished not only from the mechanical obstructions of the upper part of the œsophagus, whether from stricture, pouch, or other hindrance, but also from the difficulties of swallowing that depend upon paralysis, whether hysterical (so called) or senile or from progressive muscular atrophy. It is not necessary that I should try to point-out the diagnosis of stammering in deglutition from each of these diseases. The common ground of diagnosis from them all is in the predominant influence of mental association in the stammering, and its slight, if any, influence in any of the other difficulties. Sometimes swallowing is easy and unhindered ; at others very difficult, especially in company, or when the trouble is particularly inconvenient, or the mind too much set on it. Briefly, nearly all that has been said of stammering with the urinary muscles might be repeated, *mutatis mutandis*, of that with the muscles of deglutition, and both may be studied by their likeness to the ordinary speech-stammering, with which, indeed, they may be associated in the same person or in the same family. A man of forty with well-marked stammering in swallowing told me that he had stammered in speech during all his earlier life, but he now spoke smoothly.

I have not seen cases enough to be able to discrimi-

nate between the stammering and the spasmodic stricture of the œsophagus. I think they are different affections, but I need more opportunities of studying them. If any one will investigate them, much help may be gained from the paper by the late Dr. Brinton in the 'Lancet' for January 6, 1866, and from the remarkable case of fatal spasmodic (or stammering?) obstruction of the œsophagus recorded by Mr. Henry Power.<sup>1</sup>

I believe that a disorder essentially similar to stammering may be traced among the cases of difficulty of defæcation not due to organic disease; but it requires more study than I have yet been able to devote to it.<sup>2</sup>

---

<sup>1</sup> *Lancet*, 1866, vol. i. p. 252.

<sup>2</sup> I have lately seen John J——, aged 3½, the child of very nervous and excitable parents. He has been slow in learning to speak, and now stammers, sometimes a little, but occasionally very badly. Sometimes he passes large evacuations without pain or difficulty; but often, particularly, his father told me, when his speech-stammering is troublesome, he spends from half an hour to an hour in futile attempts at defæcation. On these occasions he becomes very excited, running about the room, and from one person to another, apparently in considerable pain, passing his urine at frequent intervals, complaining that he cannot relieve himself, and asking that some one should rub his stomach. If he is soothed, and humoured he becomes quiet, and at length his bowels act. Enemata and large doses of purgatives had failed to remove his trouble, and frequently there is no action for three or four days. I carefully examined the anus and rectum, and could detect neither narrowing, valvular obstruction, nor anything else that felt unnatural in either.—[Ed.]

### *CASES THAT BONE-SETTERS CURE.*

---

AFTER systematic lectures on the chief injuries of the bones and joints, it may be useful if I try to enforce by particular illustrations some of the general principles that I stated ; and it may secure your attention if I use the form of speaking of the Cases that Bone-setters Cure. For few of you are likely to practise without having a bone-setter for a rival ; and, if he can cure a case which you have failed to cure, his fortune may be made and yours marred.

I believe that, in the large majority of cases, bone-setters treat injuries of joints, of whatever kind, with wrenching and other movements of them. The proceeding was described to me lately by a gentleman who had a well marked fracture at the lower end of his radius. He had been to a distinguished bone-setter, who, with a glance at the wrist, said : ‘ You ha’ put out your wrist, that’s what you ha’ done ; ’ then violently stretched and moved the joint ; then said : ‘ Now you go and hold that under my pump , ’ and, after the cold douche, took his fee. The fracture, being none the better for this treatment, was, at a second visit a few days later, again wrenched, pumped upon, and paid for. But, this time,

much pain and swelling followed ; and the patient had the wisdom to call himself a fool, and to go to his usual medical attendant ; who sent him to me.

Cases of this kind are of frequent occurrence. To the bone-setter, every injured joint is 'put out ;' and the one method of cure is the wrench and the rough movements, by which it is said that the joint is 'put in' again.

Now, it would be of little use to us to estimate, even if it were possible, the quantity of mischief done by treatment such as this. It is more important to know and consider that it sometimes does good ; that, by the practice of it, bone-setters live and are held in repute ; and that their repute is, for the most part, founded on their occasionally curing a case which some good surgeon has failed to cure. For here, as in all similar affairs, one success brings more renown than a hundred failures or mischiefs bring disgrace. The patients who are cured never cease to boast of their wisdom in acting contrary to authorised advice ; but they who are damaged are ashamed of themselves, and hold their tongues.

What, then, are the cases that bone-setters cure with their practice of wrenching ?

First, of course, they have a certain number of real fractures and dislocations which they reduce, and of old ankyloses which they loosen. Of these, I need say nothing ; for I believe there is nothing in their practice in these cases which is not as well or better done by regular surgical rules.

Next, there is a rare accident which a wrench may cure, and which, if you are not on your guard, you may

? clay

fail to make out ; namely, the slipping of a tendon. I have known the tendon of a peroneal muscle<sup>1</sup> slip to the front of the outer malleolus ; and in three instances I have known the extensor tendon of the middle finger slip over the heads of the metacarpal bone and first phalanx ; and here, from our museum, is the long tendon of a biceps<sup>2</sup> slipped from its groove. Of these accidents, the first two may be made-out by feeling the displaced tendon and the gap where it should be ; the third may be at least guessed-at by the signs which Mr. Soden has pointed out in his case, related in the *Medico-Chirurgical Transactions* ;<sup>3</sup> the slight forward prominence of the head of the humerus, its drawing up under the acromion, and the pain at the lower end of the biceps on stretching it. As to this displacement, however, I doubt whether it would be ever so certainly made-out as to be fairly reduced ;<sup>4</sup> the others, at the ankle and the finger, should be remedied by relaxing the slipped tendon as extremely as possible, and replacing it with lateral pressure and sudden stretching.

Some other tendons may slip, I believe, like these ; the tendon of the popliteus appears very likely to do so ; and I can hardly doubt that a bone-setter has occasionally done, unwittingly, a lucky trick, when, with wrenchings and twistings of a joint, he has made some dislodged tendon slip back to its place.

But there is a set of cases much more common than these, which may be cured with wrenching and rough movements ; namely, the so-called internal derangements of joints. The knee-joint<sup>5</sup> is by far the most frequent

<sup>1</sup> See Note VI.

<sup>2</sup> Ser. v. 9. See Note VII.

<sup>3</sup> Vol. xxiv. p. 212, et seq.

<sup>4</sup> See Note VIII.

<sup>5</sup> See Note IX.

seat of this injury, whatever it is ; but the like occurs in the lower jaw-joint ; and I have known very similar signs of injury at the hip and elbow. The most marked sign is that, while the joint is being moved in some ordinary action, most often when the foot rests firmly on the ground, and the thigh is rotated outwards on the leg, something is felt slipping or suddenly caught between the bones, and a great pain comes and the joint is locked. It will move in one direction, not in the opposite one : just like a hinge with a stone in it (as a patient described it to me). The locking of the joint, which is, usually, at moderate flexion, is soon followed by effusion of fluid into it, and other signs of more or less acute inflammation of the synovial membrane ; and, if nothing be done, these last for some days, or even for some weeks, before, with subsidence of the inflammation, the joint gradually regains mobility.

Many of these symptoms are like those due to a loose piece of cartilage in a joint—a much rarer condition. But, with loose cartilages, joints are not, I think, often locked for any length of time ; they are stopped with extreme pain when the cartilage gets between the bones, but it soon escapes and they go again. In some of the cases of what I am calling locked joint, at the knee or lower jaw, it is probable that one of the interarticular cartilages slips and is nipped between the bones. We have, in the museum, a cast <sup>1</sup> from a knee in which it is certain that this happened. But in some cases it seems more likely that a fold of synovial membrane, or a portion of capsule, or of synovial fringe, is

<sup>1</sup> See Note X.

caught and nipped. However we may explain the accident, it is one of those that may be cured by the bone-setters. Such movements as theirs are not always necessary; and none should be practised recklessly or without plan; but force may be requisite, and, if used knowingly, will certainly set a locked joint right again.

Sometimes a patient learns for himself how to unlock his joint, and can do it gently, first, in the case of the knee, bending and then with slight rotation slowly stretching it. But he may need more force than he can use for himself; and you may apply it better than a bone-setter can.

In the case of the knee, the 'lock' usually takes place with the joint moderately bent and the leg rotated outwards. You must unlock it by extremely bending the joint, then rotating the leg inwards, and then suddenly and forcibly extending it. In the same manner, for any other joint that appears to slip and lock, you must observe the direction in which the patient can easily move it, and the direction in which movement is impossible or very painful; then you must move it, first, extremely in the former direction, and, secondly, forcibly in the latter. The manœuvre is sometimes very painful; and the force required for success may be greatly augmented by muscular resistance. In either case, the use of ether or chloroform may ease both the patient and yourself.

A fourth set of cases that may be cured with wrenching, or other forcible movements, includes those in which injured joints are held stiff, or nearly stiff, by involuntary muscular action. You may meet with such cases in



patients of any age ; but they are most frequent among the young. Sometimes after well treated fracture near a joint ; sometimes after a sprain ; sometimes when a joint has been hit hard—stiffness remains, which is due solely to muscular action ; and this stiffness in some cases is constant, and in others ensues on slight attempts at motion.

Any joint, I believe, may be in this condition at any time after an injury. I have seen it at the elbow, shoulder, cervical spine, hip, knee, and ankle ; in some instances a few hours after the injury, in some, several weeks. You may know this muscular kind of stiff joint by this, among other signs : that the stiffness is not a dead block, as if by meeting of displaced bones, nor has rigid resistance, but yields a little, as if with the ‘giving’ of a firm elastic substance which instantly recoils. Besides, you may generally feel the muscles in action ; not hard and vibrating as if with all their force, but firm, steady, and resisting. If, however, you have any doubt about the diagnosis, chloroform will settle it. As soon as the patient becomes quite insensible, the muscles relax, and the previously stiff joint becomes freely moveable.

Herein appears the best mode of cure. When the patient is under chloroform, move the joint quietly, and then confine it with splints in a posture opposed to that in which it was stiff. After a day or two, it may be moderately exercised, douched, and shampooed ; but in the intervals of this treatment the joint should be confined with the splints, if it should appear to be becoming stiff again.

You may sometimes see another condition, very like

this involuntary muscular rigidity of joints, in young children. If one of its limbs be hurt, a young child will sometimes hold the limb steadily in one position, and complain if it be moved. Thus, a child, whose thigh has been strained, will stand on the other leg and keep the hurt thigh lifted up, as if for extreme disease of the hip-joint; or, for similar hurts, will, for even many days, keep its arm close to its side, or its elbow-joint steadily bent.

Perhaps, some of these cases are the same as those I last spoke of; but in many of them the muscular fixing of the part has seemed to me not involuntary. It is more like a trick, or an instinct of fright lest the part should be hurt again. Certainly, the muscles relax instantly in sleep, and not unfrequently when the attention is distracted from them.

I suppose that bone-setters would cure this state with their panaceal pulling; but, happily, they are allowed to have but little practice among children. Happily, I say, for children's joints are much more imperilled by violence than are those of older patients; and you cannot be too cautious in concluding, when a child holds a joint fixed, that there is really no disease or serious injury. All the evidence must be negative; and an oversight may be disastrous.

However, you need not use any kind of force in this kind of contraction in a child. If the part be only allowed a few days' rest, it will get well; unless, indeed, it be seriously damaged—in which case, you will have done well by avoiding all violence.

In another set of cases, there is no doubt of the

voluntary character of the muscular rigidity of a joint. You saw lately a girl in Lawrence Ward who wilfully resisted all movements of a hip that had been only slightly hurt. If a bone-setter had wrenched her joint, it might have served her right, and the pain might have cured her temper. But she recovered just as well when she saw that she did not deceive us and was not pitied. You may expect to find cases of joints wilfully held stiff among the worser sort of school-boys, and they sham pain as well as stiffness. It is lucky for them when they can escape punishment or disgrace by lying and letting the bone-setter be believed, when he professes that he has 'put-in' their dislocations.

Now, among all these cases of muscular difficulty, there is a good harvest for bone-setters; and, without doubt, their remedy, rough as it is, is often real. Yours may be as real, with much less violence; and, with better diagnosis than they can ever make, you may do none of the harm that they often do.

But there is a yet larger class of cases which bone-setters sometimes succeed in curing very quickly; namely, ordinary sprains.

I cannot doubt that some recently sprained joints may be quickly cured, freed from pain, and restored to useful power, by gradually increased violence of rubbing and moving. This method of treatment has many times been introduced into regular surgery; but it has never been generally adopted, or, I think, long practised by any one. I suspect that it sometimes does no good, and sometimes does harm enough to disgust a prudent surgeon.

I believe that the best mode of applying this plan of

treatment is, to begin by handling, rubbing, and pressing the sprained part and its neighbouring structures very gently. After doing this for fifteen or twenty minutes, the rubbing and pressing may be increased in hardness, and the joint may be more freely moved, especially in the direction opposite to that in which it was forced by the accident. Another quarter of an hour or more thus spent, is to be followed by rougher proceedings of the same kind, till even severe pressure and wide and violent movements can be borne without pain ; and then, in an hour or so, the cure is deemed complete, or so nearly complete as to require only a slighter treatment of the same kind on the next day.

I cannot tell you in what kind or proportion of recent sprains you may employ this treatment ; indeed, I cannot advise you to use it at all, unless by way of trial in very healthy men. For I do not doubt that it will sometimes do harm ; and the greater quickness of cure which it may achieve is not worth a risk, while we can always employ such safe, and not slow, means as the combined rest and support of the sprained parts which are given by strapping or the starched or plaster-of-Paris bandage. In short, this rough-rubbing and hard-pulling treatment of recent sprains seems to me one of those dangerous remedies which, though I believe in their occasional utility, I would rather not employ till I can discriminate the cases in which they will do good from those in which they will do harm.

Such discrimination, difficult as it may be among recent sprains, is not very difficult among old ones ; that is, among cases in which the ill effects of sprains remain

long uncured. It is among these cases that bone-setters, and especially those who combine rubbing and shampooing with their 'setting,' gain their chief repute, and not without some right.

Among 'old sprains,' you will find a strange variety of cases—chronically inflamed joints, each probably bearing the marks of the constitutional disease or unsoundness of its possessor, and loose joints, and slipping, and creaking, and weak, and irritable joints, and many more. To all these, mere bone-setting does harm, or no good; and rubbing and shampooing are of little, if any, use; indeed, to a really inflamed joint they would generally be mischievous. But among 'old sprains' are not a few cases in which a joint, after long treatment, remains or becomes habitually cold. It is generally stiffish and weak, sensitive, aching after movement, or in the evening or at night, sometimes swollen, puffy or œdematous, but not with an 'œdema calidum.' Whatever else it is, it is cold, or, at the most, not warmer than the healthy fellow-joint. Among these cold joints, bone-setters and rubbers gain, as I said, great repute; and all the more because they often get the cases after the patients have become tired and discontented with a rather over-careful surgery. Admirable as is the rule of treating injured joints with rest, such rest may be too long continued; and in every case in which it has done full good, it must, in due time, be left off. With rest too long maintained, a joint becomes or remains stiff and weak and over-sensitive, even though there be no morbid process in it; and this mischief is increased if the joint have been too long bandaged, and still more if it have been treated with the cold douche.

I need hardly say that it may be sometimes difficult to decide the time at which rest, after having been highly beneficial, may become injurious ; or that the decision is always a matter of grave importance. On the one hand, you and the patient may be losing time through over-caution ; on the other, the risk may be incurred, through rashness, of renewing inflammation in a damaged joint. I believe you will be safe, if you will take the temperature of the part for your guidance. If the part be always overwarm, keep it quiet ; if it be generally cold, or cool, it needs and will bear exercise and freedom from restraint of bandages, with friction and passive movements, and other similar treatment of the reviving kind. And of this you may be the more sure when the cold integuments over the joint are dusky-pink or purplish, or become so when the limb hangs down, and when there is little swelling, and when pain is much greater than is accounted for by any appearance of disease.

I do not know whether bone-setters make any discrimination among these cases ; and I do not advise you to adopt their rough method in all or in most cases, for though they may, when successful, prove emphatically the utility of movements for old sprains, yet the same good may be more safely done with gentler means of the same kind. Exercise of the hurt part should be gradually increased, and always followed by long repose ; and the frictions and shampooings should be gradually made harder and more rough, and the passive movements gradually extended. Always, the part, if itself cold, should be, by any means except bandages, kept warm ; and always the patient's constitutional defects should be

watched, and, if possible, amended ; for very commonly the chief hindrance to the recovery of a sprain is not local, but some general wrong—gout, chronic rheumatism, or struma, or hysteria, as it is called.

An ‘hysterical joint’ is, indeed, sometimes a rare opportunity for a victory for a bone-setter. Cold, weak, useless for want of power of will, intensely sensitive, subject to all the seeming caprices of a disorderly spinal cord and too vivid brain,—such a joint as this may be cured by the sheer audacity with which it is pulled-about. If nothing in it but its portion of the nervous system is in fault, this may be sometimes cured through influence on the mind. And so not only bone-setters, but the workers with Mesmerism, and tractors, and oils, and distant or superficial electricity, can sometimes cure hysterical joints : for the patients love to be cured with a wonder ; and the audacious confidence of all these conjurors is truly wonderful.

From all this, you may see that the cases that bone-setters may cure are not few. I think it very probable that those in which they do harm are numerous ; but the lessons which you may learn from their practice are plain and useful.

Many more cases of injured joints than are commonly supposed to be thus curable, may be successfully treated with rough movements—wrenching, pulling, and twisting. The cases that are thus curable I have endeavoured to point out to you. Be on the watch for them. But remember always that what may be treated violently may be treated more safely and as successfully with comparative gentleness ; and that, in some cases, you may

very advantageously use chloroform or ether. And remember, also, that no degree of violence, not even such movements or exercises as I have advised, can be generally safe in the treatment of injured joints, unless when directed with a skilful discernment of the appropriate cases.

Learn then to imitate what is good and avoid what is bad in the practice of bone-setters; and, if you would still further observe the rule, *Fas est ab hoste doceri*, which is in no calling wiser than in ours, learn next what you can from the practice of rubbers and plasterers: for these also know many clever tricks; and, if they had but educated brains to guide their strong and pliant hands, they might be most skilful curers of bad joints and of many other hindrances of locomotion.

---

Since the publication of this lecture, a valuable essay on bone-setting has been published by Dr. Wharton Hood,<sup>1</sup> who has thoroughly learned the art, and practises it skilfully. He fully describes the several methods of manipulation, and no one can doubt their value when used prudently.

My later experience, as well as Dr. Hood's essay, makes me believe that my account of the 'cases that bone-setters cure' is not very faulty. I have made some corrections in it, and have some things to add.

Chiefly, I would add emphasis to what I have said of the mischief of keeping injured joints too long at rest, or too cold. Too long rest is, I believe, by far the most

<sup>1</sup> 'On Bone-Setting,' 1871.



frequent cause of delayed recovery after injuries of joints in nearly all persons who are not of scrofulous constitution. In the healthy, the chronic-rheumatic, and the gouty, it is alike mischievous; and not only to injured joints, but to those that are kept at rest because parts near them have been injured. Mere long rest stiffens them, and makes them over-sensitive; cold douches and elastic restraints and pressures make them worse, and nothing remedies them but movements, whether forced or voluntary.

I have seen a case, in which, after amputation of a finger and sound healing, the hand, having been kept long at rest, became so sensitive that the slightest touch was intolerable, and even the vibration of a church-organ, while the patient was standing near, was painful. The hand was extremely wasted, but there was no appearance of disease in it.

Dr. Hood's essay should be read on all these cases, not only for the manual treatment which he teaches, but for the signs which he indicates as decisive in the choice of cases. He believes that the success of 'bone-setting' in them is due to the rupture of adhesions; and this may well be. I have seen such adhesions in the ankle-joints of legs amputated after being long at rest, though the joints had not been evidently inflamed; and Mr. Butlin<sup>1</sup> has related a case of ankylosis of a knee-joint in a limb which was long kept straight for the treatment of a fractured femur. But even without adhesions a joint long at rest may become restrained in certain movements by the gradual shortening of all those parts of its liga-

<sup>1</sup> 'Trans. Pathol. Soc.,' v ol. xxv. p. 212.

mentous structures which have been constantly relaxed, and it is likely to be very painful when a strain is put upon these shortened structures to restore them to their natural length.

Among the most frequent instances of painful stiffnesses induced by long rest of unhurt joints, are those of the fingers after fractures of the fore-arm, and especially after fractures of the lower end of the radius. And this gives me occasion to say that, of the many inventions for treating this fracture, all are bad which hinder the easy movement of the phalanges of the thumb and fingers.

Another set of instances are those of the tarsus, which, though itself unhurt, may remain stiff and painful after diseases and injuries for which the leg has been long kept at rest. These are not met with, I believe, when the foot has been kept at a right angle with the leg, as in every such injury it should be. In this posture it will bear, without strain or pain, the weight of the body when walking is resumed.

Other similar groups of cases might be cited; but they would all come under the general descriptions of joints becoming stiff and painful, or unable to bear the strain of ordinary movements, through being kept too long at rest. And if I should be asked how soon an injured joint may be safely moved or allowed to bear weight, I should say, generally, as soon as it is cool during any considerable part of the day, and not at every part tender on pressure, and not painful when its articular surfaces are pressed together. But, particular judgments may have to be formed in the cases of the scrofulous, the 'hysterical,' and the gouty; in the first, rest is seldom

too long ; in the second, seldom too short ; in the third, the general health must be considered.

As to the methods of moving the joints thus stiffened and painful, it is sufficient, in a very large proportion of cases, if the patient will resolutely use them ; bearing some pain and not fearing it as if it were a sign of disease either present or impending. In the worse cases, violent movements must be used ; and I believe the best will be such as Dr. Hood describes. Ether or chloroform may be used, and will sometimes save violence by finding that much of the rigidity is only muscular. But I must add that in all but the slightest cases, or the ‘only nervous,’ the forced movements are only the beginnings of cures. The popular belief, that the cure by bone-setting is complete at once, is erroneous ; a good start is obtained with great *éclat* ; but voluntary resolute exercises, or repeated forced movements, are necessary to maintain or increase the advantage first gained.

I have not mentioned in the lecture, a set of cases which are said to be sometimes cured by bone-setters, and in which, after strains or other injuries of the spine, stiffness and aching long remain, and especially pain or tenderness over one spot at which, the patients sometimes tell, a crack or a slip was felt at the time of injury. I have seen several of these cases, chiefly in nervous and over-sensitive women and girls : bone-setting, I have heard, has cured some ; in more, I know that it has failed ; and these have slowly recovered without any evident influence of treatment.

On these and, indeed, on all the cases of which I have been speaking, I recommend the study of Dr. Hood's essay. It may enable any surgeon to do what I advised; 'to imitate what is good, and avoid what is bad in the practice of bone-setters.'

## *ON STRANGULATED HERNIA.*

---

### LECTURE I.

I PROPOSE to give you some lectures on Strangulated Hernia, a subject of great interest in practice, and one which you should do your best to learn while here; for it is only in a large hospital that you can see many cases of hernia, and only by the study of many cases that you can prepare yourselves for the great variety with which you may have to deal.

While I was on active duty at the hospital, I operated (in the hospital and in private practice together) on about a hundred cases of strangulated hernia, and I kept full notes of nearly all these as well as of some in which my colleagues operated. It is from these notes, and from the memoranda of several clinical lectures, that I shall draw materials for my present scheme.

It may seem to you that a hundred cases of strangulated hernia should be sufficient for some statistical deductions; but they are not nearly enough. The varieties of hernia, their complications, and the different conditions of people in whom they occur, make so great a variety of cases, that it would need a tabulation of at least a thousand cases to obtain conclusions of real value.

I shall, therefore, use my notes and recollections only to enable me to tell you what appear to be truths on some of the most important practical parts of the subject.

Our first subject may be the grounds for determining whether a strangulated hernia, or one supposed to be so, is to be submitted to operation. Speaking generally, one may say that when in a case of hernia signs of strangulation are present, and reduction by the ordinary means cannot be accomplished, the operation for reduction should be at once performed. But then, what are the sufficient signs of strangulation? and what are the ordinary or, better, the reasonable means for reduction without operation?

In all well marked average cases, that is, in such as are neither slight nor very severe, neither (as some divide them) acute nor chronic, these following may be regarded as the signs of strangulation justifying operation. The hernia, usually reducible, or now first formed, cannot be reduced by reasonable means. If not recently formed, it is larger than usual, tense, firm, or even hard; without impulse, without resonance; painful, and tender on pressure, especially at its mouth and neck. The bowels do not act, though they may often be felt contracting, and may cause much colic and spasmodic pain, especially at the navel and the pit of the stomach. With this pain there is commonly some tenderness, with a feeling of tightness, in the abdomen, especially about the navel and between it and the seat of the hernia. The patient is often sick, vomiting nearly all the food and drink that he swallows and, besides, a quantity of gastric and biliary secretion, or of the contents of the small intestines more

or less diluted. The pulse and respiration are usually quickened and rather feeble; the patient feels and looks restless, low, and miserable—or, as it called, ‘anxious.’ He cannot sleep or eat; and the hands and feet are apt to become cold shrunken and dusky.

Whenever all these things are observed, and when they remain after such reasonable attempts at reduction without operation as I will presently speak of, you may hold that the operation should be done without delay. Much more, if possible, should it be done if these things be all worse than I have described. When the integuments over the hernia are inflamed, thick, sodden, and ruddy, or emphysematous; when the whole abdomen is swollen, tense, and tender; when the vomit is just like the liquid fæces of the ileum; the pulse very rapid, feeble, and small; the skin cold and dusky and clammy; when the patient is dim in sense and mind, or in an anguish of misery with retching and hiccough; when all or the greater part of these elements of what the old writers called a *miserere* are combined; then, without trying any other method of reduction, you must instantly operate, though you may have only the slenderest hope of doing good, and a serious fear of seeming to do harm.

Thus far, one may speak very positively. In the cases which I have sketched, these are the sufficient signs of strangulation; and if the hernia cannot be safely reduced without operation, the operation must be done. But you will not see many cases without seeing some in which, although the hernia may be irreducible, yet the signs of strangulation are very slight, obscure, incomplete, or in some other way not sufficient to make it nearly certain

that the operation is necessary. It is an easy rule for all these cases that, whenever you suspect that a hernia is strangulated, you should operate. If you will follow this easy rule, you will do some very bad surgery ; you will kill a few patients whose lives you ought to save ; and you will make many ill for two or more weeks who might be well in as many days or hours. You must avoid the easy rule, and learn the hard one of discriminating the cases that require operation. You must learn to discriminate those in which the operation must be done at once, without any previous attempts at reduction, and those in which before operation one or more attempts at reduction should be made with ether, chloroform or other helps. For the purpose of discrimination, let it be your design, in each case of strangulated hernia, not to choose any measure for its reduction till you have fairly weighed the signs of strangulation of which I have spoken. For convenience of thinking, you may divide them into local symptoms, including all the characters of the hernia itself, and the remote or general symptoms, especially the inactive bowels, the state of the abdomen, the vomiting, the pulse and respiration, and the general condition. I will try to tell how each of these, in its several degrees, may be estimated.

1. First, of the local symptoms, the irreducibility of the hernia, its unusual size, its tension or hardness, and the others which I enumerated, a few rules may include all that I can tell. It will be convenient to speak of irreducibility last ; for, though it may seem as if it should be the condition decisive for operation, it is really a fallacious sign of strangulation ; and, in some instances,



no trial should be made to test its existence. As for the other local symptoms, their presence, in even a marked degree, is not decisive of strangulation, and is not sufficient to prove the need of operating when the remoter signs are not present. For the local symptoms may be found when a hernia or its sac is acutely inflamed, though not strangulated. In this state, which may follow injury, or even arise spontaneously, a hernia may become quickly larger than ever, firm and very tense, without impulse, very painful and tender, hot and red, and not at once reducible by any fair means. The sac may suppurate, the integument may slough; and yet there may be no strangulation and no need of an operation. I have, indeed, only once seen this sloughing of the integuments over a hernia; but the case is not likely to be without parallel, and was a glaring instance of the fallacy of the local signs of strangulation.

A very stout elderly lady had a large umbilical hernia, which became painful, tender, and irreducible; her bowels did not act, and she felt sick, but did not vomit. There appeared no urgent need for operation, and she was one in whom an operation was not to be undertaken lightly. But, after three days' watching, during which the local, but not the remoter, signs had somewhat increased in severity, I found that a large portion of the thin integuments covering the hernia had rapidly sloughed. I operated at once, though with little hope of doing good; for I supposed that the contents of the sac must also have at least partially perished. But they were not even severely strangulated; the mouth of the sac was too small for their return, but they were not tightly girt, and the

intestine was only moderately congested. The sloughing of the integuments seemed due to inflammation in a very feeble person and an ill-nourished part; and with the same feebleness the patient died on the day after the operation.

You may find then, and not rarely, that the local characters usually present in a strangulated hernia may be imitated in an inflamed hernia which is not strangulated. And, though very rarely, many of the remoter signs—the constipation and the vomiting, the quickened pulse and breathing, and the rest—may exist when a hernia is inflamed but not strangulated. How, then, can you discriminate? Generally thus: in the inflamed hernia, without strangulation, the local signs precede, and greatly predominate over, the remoter and general signs; while, in a hernia which is inflamed after becoming strangulated, the remoter and general signs will still predominate over the local, and the history will tell that they preceded.

These means of discrimination, however, will not always suffice. You will meet with cases in which you will be uncertain whether the hernia be only inflamed and irreducible, or strangulated and inflamed; but in these cases you must not be uncertain of your practice. If you cannot very easily reduce the hernia, you must operate. The risk of operating on a hernia which is inflamed and not easily reducible is very small, in comparison with the risk of leaving one which is inflamed and strangulated; and even if you can find reasons for waiting, it must be with the most constant oversight, for an inflamed and irreducible hernia may at any time

become strangulated, and will certainly do so if not relieved by rest and other appropriate treatment.

For a second rule : if the remoter signs of strangulation be present, the local signs are urgent for speedy operation in the same degree in which they are marked, or in even a greater degree ; for severe strangulation is often associated with slight local symptoms.

But, to judge rightly from the local symptoms, each may need to be carefully weighed as evidence for the necessity of operating, or of adopting other methods of reduction.

In reference, then, to the chances of reducing a hernia without operation, it is a bad omen when one has quickly come down much larger than ever before. A great majority of patients give this as the beginning of their troubles. Sometimes they tell that, while making a great effort, they felt the descent come larger than ever ; that they felt some pain or more than usual increase in the hernia, and could not reduce it in the customary way. More often the larger descent has happened without apparent cause. While the patient was sitting, or in bed, or quietly walking, the descent has occurred ; but, perhaps, most frequently it has seemed connected with some diarrhoea, or colic, or spasmodic pain, or with some kind of turbulent movement of the intestines, for some hours, or a day or two, before the descent. In some cases, moreover, the unusual size of the hernia is attained at once ; in others by gradual increase. In some it very quickly becomes painful ; and these are rather less likely to be reduced than those in which pain follows more slowly.

I cannot give you any satisfactory explanation of these unusual descents of herniæ or of their becoming strangulated ; but let them teach you not to be deceived by any notion, that some unusual or startling event is necessary as a cause for the strangulation of an old hernia. I believe it may be held as a safe rule in practice, that the more a recently descended hernia exceeds its usual size, the less is the probability of its being reduced without operation ; and I think that the probability becomes the less, the more the size of the hernia continues slowly to increase ; for not a few of those that have suddenly become very large, and then have not increased, may be reduced without operation, if the patient be put under ether or chloroform soon after the descent.

Similarly, when general signs of strangulation exist, the harder and more tense a hernia is, the less is the chance of reduction without operation. The hardness may be due to any one of several conditions ; but, to whatever it may be due, it is an untoward sign. It is especially so if the hernia be a small one. In large herniæ, the hardness may chiefly be felt at and near the neck and mouth of the sac, especially in inguinal herniæ ; and you must take care not to be deceived by a sac which is soft and flaccid everywhere except at its mouth ; for there may be strangulated intestine in the mouth of the sac, though the rest contain only soft omentum or fluid not sufficient to distend it. Nay, you must not let even a wholly soft condition of the hernia, or an open external ring, weigh-down against the well-marked general signs of strangulation ; for the piece of intestine at the mouth

of the sac may be too small to give a sensation of hardness, or the whole hernia may be omental.

Again, if the general signs of strangulation exist, the more painful and tender a hernia is, the less, speaking generally, is the chance of reduction without operation. But here it is to be observed, that this rule holds less for recent than for old herniæ. A recent hernia may be horribly painful, apparently because of the tension of the stretched fibrous tissues about the sac's mouth. Yet such an one may commonly be reduced with the help of chloroform ; but an equally painful old hernia, or one that has slowly become thus painful, may require speedy operation. And the operation must be all the more certainly done when, together with any of the remoter signs, there are other local signs, such as inflammation of the coverings of the sac, suppuration, emphysema, or the like. These are imperative for operation, without any previous attempt at reduction.

And for another rule : if the remote signs of strangulation be well marked, and the hernia cannot be otherwise reduced, you must operate, though there may be no marked local sign at all. Or, even beyond this, if the general signs of a strangulated hernia be present—the constipation, vomiting, and others—and there be anywhere a swelling which may be a hernia, though it seem not likely to be a strangulated hernia, the operation must be performed at the seat of that swelling.

Reasons enough for this rule may be found in the many cases in which the local signs of a strangulated hernia are so little marked that the patient, having his attention spent on the misery of his vomiting and epigastric

pain, and other symptoms remote from the hernia, says nothing of the hernia itself. In not a few of my recorded cases, the hernia had been overlooked for a day or more ; and the patient had been treated for spasms, colic, dyspepsia, or some other imitated disease, while the hernia was obscurely becoming hopelessly strangulated.

This last rule, of operating though there be no local signs of strangulation, may lead you into trouble ; into the trouble and discredit of performing an useless operation, and seeming to do much more harm than good. But this you must face ; it is just in instances such as this that surgery must incur the risk of seeming to do harm rather than miss the opportunity of doing good. I have operated thus uselessly in three cases. One was an irreducible umbilical hernia, in which there was no strangulation, but vomiting and other signs of strangulation, caused by (I believe) gall-stones. Another was a simple femoral hernia, with an internal strangulation of a piece of intestine far away from it. The third was an inguinal hernia with the same complication. All the patients died, and my operations seemed worse than useless failures. But you must face this risk of seeming wrong.

You may have to go further than in these cases ; and if, for instance, a patient have two herniæ that are irreducible, and signs of strangulation, and you cannot tell which is strangulated, you must operate on both. I saw Mr. Stanley do this ; and no one could blame him, though, when death followed, it was found due to an internal strangulation distinct from both the herniæ.

These are the chief rules, so far as I have been able

to learn, according to which you may use the local symptoms of a supposed strangulated hernia as a part of the evidence for determining for or against an operation for reduction. And to these it may be briefly added that the local symptoms are generally less severe in the old than in the young; in old herniæ than in new; in omental herniæ than in intestinal.

Let me now go on to speak of the guidance to be derived from the remoter symptoms; and, first, from the inaction of the bowels. This inaction, or rather this hindrance of expulsion, is a nearly constant sign in strangulated hernia, but occurs in so many other cases that its sole presence is of little weight among motives for operating. Its absence is, rather, that which needs study.

One or more actions of the bowels, after other signs of strangulation have set-in, are of no weight at all against the propriety of operating. They commonly occur, because usually after strangulation the part of the bowel below the constricted part empties itself. These actions of the bowels are not to be counted on either side of the question about reducibility or operation; and even a regular and frequent action is not an absolute prohibition, for the strangulation may involve only omentum, or only a part of the circumference of a portion of intestine. In these conditions, fæces may pass along the canal and be discharged.

I had to see a lady for what was considered an abscess in her groin. The swelling was just over the femoral ring, and contained fluid and air. I punctured it, and let out pus and air and liquid fæces, and presently

I found a piece of hernial sac sloughed-off and lying in the abscess. This and the history of the case proved that the hernia had, about a week previously, descended when the patient felt a sudden pain while driving. The hernia was so small that it was overlooked; its pain and the griping which it caused were thought due to colic, and were so treated. The bowels acted sufficiently, and gradually the little hernial sac and its enclosed piece of the intestinal wall died and sloughed-off. Then came the signs of abscess over the femoral ring, and its outlet; and this was followed by complete healing and many years of health.

However, such cases as this are very rare; and you may hold by the general rule, that you should not operate when the bowels act frequently or regularly, unless all the other signs of strangulation, both local and remote, be well marked.

The state of the abdomen is as little or less decisive in cases in which you may be in doubt. Of course, if it be sensitive and tender on pressure, either everywhere or in parts near the hernia, still more if it be distended and the muscles hard, this is an addition to the reasons for operating, and, I may add, to the reasons for fearing that you may be too late. It is more to be remembered that, when the abdomen is not tense or tender, when it may even feel nearly natural, yet you must operate if other signs of strangulation be present, and the hernia cannot be put back. For the changes of the abdomen are not common near the beginning of strangulation, and to wait for them would often be to wait too long.

If I were asked which of the signs of strangulation I



would most rely on as commanding the operation, I should certainly say the vomiting. Time after time, when the other signs were feebly, if at all, marked, the vomiting has been a sufficient guide to a timely operation. Many times, when all else was so quiet that it seemed rash to operate, the vomiting proved that it would have been much more rash to wait ; and not one instance can I find in my notes in which neglect of the import of vomiting was not proved to be unwise. You had better hold the rule complete, that, when a patient has a hernia, recently become irreducible, and, with this, vomiting which cannot be clearly assigned to something independent of the hernia, you should operate. I am obliged to say recently become irreducible, because a patient with an old irreducible hernia may vomit, as any one else may, without any reason for suspecting strangulation ; though in even these old cases you must be very watchful lest the vomiting be an early sign of strangulation. But the rule is safe that recent irreducibility and vomiting are enough to justify the operation, even though there be no other signs of strangulation present. Much more must the operation be deemed necessary when with these the other signs of strangulation, in even slight degrees, coincide.

And in thus judging of the vomiting, do not be too scrupulous as to its manner or its products. There are indeed some notable modes of vomiting when intestine is strangulated. The patient vomits all he drinks, and that soon after taking it ; and besides, he vomits fluids of his own secreting ; and this vomiting is commonly (at least in the later stages), with gushes of large quantities

of fluid, without much retching or violence, as if the stomach slowly became full of its own secretions and of those of the upper part of the intestine, and then, without any preceding nausea, suddenly emptied itself.

When you see these kinds of vomiting with a hernia lately become irreducible, or even with any swelling that may be a hernia, you may be sure that you must operate. But do not wait for any supposed characteristic mode of vomiting; do not be misguided by the absence of some peculiar fluid; nay, do not be misguided by the absence of all vomiting; for I have known it absent in the case of a very large hernia, which was certainly strangulated, and on which I operated successfully. And do not be misguided by an apparent diminution in the severity or in the frequency of vomiting, or by the vomiting having begun as soon as the hernia descended; for this it often does. Any kind of vomiting, if it be repeated, is enough to justify operation in a hernia recently become irreducible. Let me tell an illustrative case, which taught me the more because it occurred in one whose life was of great value. He was elderly and weakly, but laborious in literature. For three days after the descent of a hernia, which could not be reduced as it usually had been, there was not a single sign of strangulation, except this irreducibility, constipation, and occasional vomiting. He had no pain in or near the hernia; no feeling or aspect of illness; no hardness or tension of the sac; and the vomiting was only occasional, and there were often many hours of interval. But, after the three days, abdominal pain suddenly set in, with coldness and faintness and wretchedness. Within two hours I operated; but it was

too late ; peritonitis had already begun, and the operation was useless or worse than useless. He died in twenty hours.

Cases like this are frequent. All seems pretty well ; and then comes an inrush of indomitable symptoms. The hernia is not acutely inflamed ; the patient is not greatly distressed ; he flatters himself that he is better, and the similar flattery of his friends is yet stronger : all are averse from operation, and you can hardly persuade yourself to be resolute about it. But there should be no hesitation. I lost the chance of saving this man's life, by underestimating the importance of occasional vomiting as a signal for operation. If you lose such chances, you will be still more blameworthy ; for you will have had more warning than ever I had.

And once more ; do not be deceived by the cessation of vomiting in the extreme condition of strangulated hernia. This sometimes happens ; but it is a token of evil rather than of good, if general improvement do not coincide with the cessation of vomiting. So, again, sickness may be stopped by narcotism ; but here again there is no evidence of such general improvement as might justify waiting.

In the recent stages of strangulation, if it be not very acute, the respiration and pulse are little affected. The pulse is usually accelerated, and at first may be full and firm. I find that it was between 80 and 90 in a large majority of the ordinary cases which I have recorded ; and the respirations are, generally, I think, in due proportion to the pulse. As the other signs of strangulation become more marked, these, I think, always

coincide with them. The pulse usually becomes quicker, feebler, smaller, unless indeed after the warm bath, when its strength and size may be greatly increased; the respiration, I think, keeps pace with the pulse.

Thus, these signs corroborate the others in urging to an operation. I have not any notes or knowledge of cases in which the pulse or respiration was so inconsistent with other signs of strangulation as either to justify or to forbid the operation. But you may have this for a safe rule; that if, while you are watching a case, doubtful whether there be strangulation, the pulse and breathing should increase in frequency, you may believe that there is a commensurate increase in the reasons for operating.

Lastly, as to the patient's aspect and general condition, little that is definite can be said. You read of an anxious expression, and it is called characteristic, as many other fallacious things are. I should rather call it an expression of distress or of misery; but, however you may name it, be careful not to think that you must see it before deciding that it is right to operate for a strangulated hernia. The worse a patient looks or feels; the more he looks shrunk, worn, and old-aged; the more miserable his sensations; the more is it unlikely that his strangulated hernia will be reduced without operation. But the reverse is not true. I have operated with full right, as proved by the result, on patients who neither looked nor felt miserable or anxious in any sense of the word. And I have seen a patient looking well and tranquil in whom a femoral hernia, after seven days' strangulation, contained completely gangrenous intestine.

## LECTURE II.

IN the last lecture, I tried to show how the signs of a hernia supposed to be strangulated may be used for guidance in determining whether its reduction must be achieved by operation, or whether any simpler means for reduction may be used. In this lecture, I will speak of the trials at reduction that may be made, or may not be made, before operating.

For a general rule, your first examination of a patient with a hernia supposed to be strangulated should not be with a design to reduce it at once, but rather with a design to make-out what shall be done; what are the chances of reduction without operation; what helps shall be used to obtain it, if it be deemed desirable. Of course you may reduce the hernia, if reduction at once be easy; but do not go on trying if it be difficult. If the case be a bad one, you must first decide whether reduction without operation should be even attempted; and, if the attempt is to be made, what and how much it should be. For this decision, here are some general rules, which I find illustrated by my cases.

In very bad cases—as, for instance, when the patient vomits fæcal matter and has peritonitis<sup>1</sup> or is in collapse, with a small rapid pulse, hiccough, or other such extreme signs—there should be no attempt at reduction without operation. The risk of the operation is trivial in com

<sup>1</sup> Note XI.

parison with that of returning sloughing or ulcerating intestine into the abdominal cavity.

105— When the coverings of the hernia are so inflamed as to make it probable that sloughing or suppuration has taken place beneath them, reduction without operation should not be attempted; and, even when they are less inflamed, none but very brief and very gentle efforts should be made, for success is improbable, and failure may be mischievous.

The longer the signs of strangulation have existed, the shorter should be the efforts at reduction; and the more acute the signs are or have been, the more gentle should these efforts be. Only, here, do not reckon among the acute signs the intensity of pain in recent or greatly enlarged herniæ; for many of the most intensely painful herniæ are reducible with the help of anæsthesia, though they may need as much force as is in any case justifiable.

The longer and the more numerous and forcible the efforts at reduction made, in any case, before it comes under your care, the briefer and gentler should your own efforts be; if, indeed, you do not at once decide that enough has been done, and that there remains no fair chance of reduction without operation.

If you find that you have to do with a hernia which has been habitually irreducible, and in which you have reason to believe that, without any addition to them, the contents of the sac have become strangulated, you had better operate at once. You are not likely to reduce a protrusion which even before strangulation was irreducible.

Let me now suppose that, observing these rules, a first examination of a strangulated hernia leads to the decision

that its reduction without operation is to be attempted : I cannot give a single rule of practice that shall always suffice for the next step after such a decision ; but, speaking generally, and of a great majority of cases which come under treatment, it is a safe rule of practice that, after a very warm bath and a few hours' rest in bed—say from three to twelve hours, according to the case—a single attempt at reduction, of reasonable force and length, should be made ; that, if this should fail, chloroform or ether should be given ; that then, in some cases, but not in all, a second attempt should be made ; and that, if this should fail, or if it should not be made, the operation should be performed while the patient is still insensible.

The hot bath should be used in all cases that are not very bad, unless in old and feeble persons, whom it might depress too much. Among these, its place may be supplied by very hot fomentations, or by warm poultices over the hernia and the parts near it ; and these must be used as the next best things when a hot bath cannot be had. Helped by rest, all these things are certainly very useful, whether by relieving the tendency to irritable muscular action, or by relieving congestion, or by whatever other means. Especially you may see their utility in hospital patients, who are commonly brought-in wretched, chilled, and restless, with their herniæ tense, full and very painful, and their abdominal muscles starting into resistance at the least painful pressure. The heat of the bath, and bed, and recumbent rest, may remedy all this ; and the hernia may become easily reducible, or may even reduce itself. It is commonly advised to have the bath so hot, and to keep the patient so long in it, that he may

be very faint; and during this faintness to attempt the reduction while the patient is still in the bath. I more than doubt the prudence of this advice. It seems to me better to let the patient be simply soothed and relaxed in the bath, then to put him into bed wrapped in warm blankets, lying on his side, on his back with his knees drawn-up, or with his pelvis a little raised, and then, after an hour or two of complete rest, to attempt the reduction. The advantage of this plan is shown in the many cases in which the surgeon gets the credit for reducing a hernia which the house-surgeon has failed to reduce. The house-surgeon tries in the bath, and fails; the surgeon, an hour or two later, succeeds, not, or at least not always, by greater skill, but by reason of the more favourable condition of the patient after a time of rest and warmth, and of his better position—lying flat instead of half-sitting as in the bath. This employment of rest and the bath may be helped by opium whenever the hernia is very painful, and the patient too restless to have a chance of natural sleep. A grain of opium may procure the rest necessary for the quietude of the parts, but is less likely to be useful with femoral than with umbilical herniæ, and less likely with these than with inguinal.

In the old, and in others who may have had inactive bowels long before the strangulation, and in whom faecal accumulations or abundant air may be in the large intestine, an enema even of a large quantity of liquid should be used; for the emptying of the large intestine may greatly facilitate the return of the hernia. Purgatives, I believe, had better not be thought-of, if there be any marked signs of strangulation. There are no clear indications for



determining the cases in which they might possibly be useful ; and, if they do no good, they may do grievous harm. I do not doubt that some have gained advantage from purgatives ; but in my notes and memory I find several instances of mischief, and no cases in which there seemed reason to think that the patients were the worse for not taking any sort of purgatives after evidence of strangulation.

After the warm bath and rest—and still speaking of only the majority of cases, for in some there is no time for these things—you may give chloroform or some other anæsthetic, and try to reduce the hernia. How you are to do this, I cannot tell you now ; nor what time and force are reasonable to be used. You must imitate what you see done by men of repute, and use the best common sense you can. I can tell you some things that you must not do. You must not go to work as if you were resolved to reduce the hernia *per fas aut nefas* ; you are not to spend an hour or even half an hour about it, or use all your force, or take off your coat and turn up your shirt-sleeves, or kneel on the bed that you may press with the more weight ; you are not to let half a dozen persons try their hands in turn. You are not to do these or the like things, all of which I have known as the sources of dire calamities. You are to be gentle and self-restraining, mindful of the delicacy of some of the structures you are handling, and that you may do them much more harm than would come of the operation which you are trying to avert. These cautions are the more necessary because, when the patient is insensible, you have nothing but your own sense and senses to tell you how far you may

6.120  
go without doing harm. The great value of chloroform and ether is that, by abolishing sensation, they put an end to the muscular resistance to reduction which, whether he will or no, the patient makes when hurt by the pressure of his hernia. Hence they are most useful in the herniæ of which the difficulty of reduction is chiefly due to muscular resistance; in the recent, or in the recently much enlarged; in the inguinal more than in the femoral, and in these more than in the umbilical; in the painful more than in the painless. Chloroform and ether are by so much the most potent helps to the reduction of herniæ, that it may seem as if it would be right to use one of them without waiting for the influence of a warm bath, or recumbency, or any similar means. Sometimes it is right thus to do, especially in herniæ that have only recently come down and are intensely painful. But more commonly, if there would be danger in waiting for three or four hours, it is because strangulation is so far advanced that the operation ought to be done at once, without any previous attempts at reduction. If there be no such extreme urgency for immediate reduction, there can be nothing but advantage in the use of the bath and the three or four hours' rest in bed; for they may make the hernia reducible, or, even if they fail of this, they may cause changes in it which are beneficial for both the performance of the operation and for the probabilities of recovery after it.

I have been speaking lately of the plans for average or medium cases; and before, of the cases in which no attempt at reduction without operation should be made. You may ask, Are there any cases in which it is justifiable

to wait longer after the warm bath and rest and chloroform and a fair attempt at reduction have been tried and have failed? I will not venture to say that such a case for waiting cannot happen; but I am clear that the rule, with barely an exception, must be that, when you are satisfied that a hernia is strangulated, and you have failed to reduce it with such helps as I have indicated, you should operate. While the patient is still insensible the operation should be done; and you should prepare for it before giving an anæsthetic. Of course, if you are satisfied that the hernia, though irreducible, is not strangulated, you may wait; but in this case you must watch almost impatiently, for an intestine or omentum that cannot be reduced is very likely soon to become strangulated, and so is one that is inflamed or blocked-up in a hernial sac. Still, if no signs of strangulation, especially if no vomiting, should supervene, you may wait from day to day; but if the signs do occur, especially if there arise vomiting, or increase of pain, or increasing rapidity of pulse and breathing, then you must operate at once, and you had better not try again at reduction. The trial is much more likely to do harm than to do good: you had better operate at once. Nothing does more harm to a strangulated or nearly strangulated hernia than the force of an unsuccessful attempt at reduction.

While you are waiting, you may use, in different cases, ice<sup>1</sup> or warm dressings, enemata, aperients, or opiates. I

<sup>1</sup> There are strong authorities in favour of the use of ice or other cold applications over large herniæ:—Lawrence, 'Treatise on Hernia,' 5th edit., p. 167; Teale, 'Abdominal Hernia,' 1846, p. 104; Erichsen, 'Science and Art of Surgery,' 5th edit., vol. ii., p. 449; Haward, 'St. Geo. Hosp. Reports,' vol. i., p. 125; Birkett 'Holmes's Syst. Surg.,' 2nd edit., vol. iv., p. 699.

cannot tell you the indications for each of them. I have not had sufficient experience of waiting to have weighed the several values of these things. But there are at least one or two conditions favourable for all cases in which you desire to wait ; namely, rest in bed and very sparing food. Nothing should be allowed to disturb the patient's rest, and no handling of the hernia should be permitted. Part of the value of ice and poultices and other like applications is this, that they all keep hands off.<sup>1</sup>

Of other supposed helps I will not speak—of tobacco, and curious postures, and shakings with the legs up and the head down, and cupping glasses, and other like and unlike things. They are ingenious wrong-doings, more dangerous than the operation which they are intended to avert.

In speaking of herniæ as being reducible, I have had in mind only such as can be completely and certainly reduced. But it is not uncommon to meet with cases of strangulated hernia, in which the reduction is doubtful or partial. As I looked through my cases, I found many of these recorded, in which there was delay in sending patients to the hospital, because surgeons believed that part of the hernia was put back, and hoped that the rest would soon go ; and some in which, even in the hospital, there was mischievous delay through the same fallacious hope. It is not easy to say what takes place in these partial or doubtful reductions. Some patients will tell you that the whole never did go back, and that what now seemed to be reduced might only be an additional protrusion. Sometimes, I think, air is pushed back from the intestine, or fluid from the sac ; sometimes omentum is

<sup>1</sup> Note XII.

put back; sometimes, perhaps, part of the intestine; sometimes nothing—the whole notion of reduction being fallacious. The liability to deception is greater than you would imagine. You may feel a thrill of receding fluid, or a gurgling of air, which you may suppose to be what some describe as the characteristic gurgling (as if anything of the kind were infallibly characteristic), or something slipping back; but all may be fallacious. There is one practical rule for all these cases. If the symptoms of strangulation be not relieved by the supposed reduction; if the vomiting continue, or the pain, or the patient's sense of distress, or any other of the distinctive symptoms—then, without delay, you must operate. A partial reduction of a strangulated hernia, if it be not followed by a complete relief of symptoms, is in nothing better than no reduction.

I may add that most doubtful reductions are not reductions; and of the partial reductions, none are safe except some of those in which intestine is put back and only omentum remains in the sac.

Be prepared also for cases in which reduction is, or seems, complete, and yet the signs of strangulation are not relieved. In these, a hernia may be returned *en masse*, or pushed into another sac, or between the peritoneum and fascia; or the case may be one of hernia complicated with an internal strangulation, or one of many other conditions so hard to discriminate and deal with, that I can give only one general rule for their management—viz., if you can feel a lump at or near the hernial ring, as if there were something which may be a strangulated hernia, then you must operate.

To end what I should say respecting the propriety of operating, I ought perhaps to speak of the condition of the patient as affecting the risk of the operation, by reason of age and general health and various complications. Among my cases, I find not only many of the fattest and feeblest, but examples of complications with phthisis, acute and chronic bronchitis, aortic constriction, phlebitis, gastric ulcer, diseased bladder, intestinal disorders of various kinds, and internal strangulation. Patients such as these one would not wound for any trivial good; but, with a strangulated hernia, the peril of doing the operation can hardly ever be so great as the peril of leaving it undone. Old age and feebleness, fatness, intemperance, or unsoundness of whatever kind, may add to the risks of this, as of any other operation; but all these risks must be accepted. A patient must not be allowed to die with a strangulated hernia, if by any means whatever the strangulation can be relieved; and you must not be averted from the operation by any consideration of the number of deaths that follow it. The deaths after the operation may be 50 per cent., but the deaths due to the operation are not more than 5 per cent., and even these would, probably, have been deaths from the hernia if the operation had not been performed. The great proportion of deaths is made up of those in whom the strangulation has done mischief which the operation cannot remedy. It is not unfair to maintain that, speaking generally, the deaths after operations for hernia are only to be counted as failures to save life, while the recoveries are to be counted as lives saved from certainly impending death.

## LECTURE III.

THE design of the operation for hernia is to divide the structures which tightly gird the protruded parts, so that these may be returned. These structures, forming what is called the stricture, are in some cases outside the hernial sac; in some, in its very substance; and, according to these and other differences, the operation may in some cases be completed without opening the sac, and in other cases must include this opening. The advantages of the two methods have been often discussed, and I may begin by speaking of them.

There can be no doubt, I think, that if all the rest of the operation were always the same, the advantage of reducing the hernia without opening the sac<sup>1</sup> should always be sought. Thus to reduce a hernia is the next best thing to reducing one without any operation at all. The structures divided externally to the sac are insignificant, and it might be difficult to name an operation less endangering either life or health than this would be. The peritoneum is not wounded; the intestine and omentum are not touched or exposed to air; the wound may be small; any hæmorrhage may be easily stayed and must be all external. Thus the wound is favourable for speedy healing, and erysipelas or any other mischief is not likely to extend to the peritoneum.

These are sufficient reasons for always wishing and

<sup>1</sup> Note XIII.

generally intending to operate without opening the sac, especially in old and feeble people and in cases of large herniæ. But you must not let your wishes carry you too far. They may lead you into great mischief. For, first, there are many cases in which the contents of the sac are not fit to be returned into the abdomen—for instance, when they are sloughing, or deeply ulcerated, or strangulated within the sac. The risk of returning these is so much greater than that of opening the sac, that you should not hesitate to open it whenever you have any, even slight, reason to suspect any of these conditions of the sac's contents. And such suspicion there must always be in these sets of cases—1, in those in which the strangulation has existed long, say four or more days, whether with slight or with severe symptoms ; 2, those, of whatever date, in which the signs of strangulation are very acute ; 3, those in which there are very marked signs of advanced or low inflammation in and about the sac ; 4, those in which the contents do not go back easily and within two or three minutes after all stricture is fairly relieved. And in measuring this ease of going back, you must be scrupulous ; for I have certainly done harm, and seen more done, by trying too long to reduce herniæ without opening the sac—fingering and clearing the parts, and pressing them many times ; damaging intestine, and exciting suppurative inflammation all about the sac ; so that when, at last, the operation was completed, much more mischief had been done than if the sac had been at first straightforwardly opened.

I think, then, you may take this as a safe rule in all ordinary cases : intend to complete the operation without



opening the sac, but give up your intention if you find any reason to suspect complications, or very morbid states of the parts within the sac, or any such difficulties as would lead to the use of forcible or long continued efforts at reduction. Of course, the more you practise the operation, the less frequently will these difficulties hinder you; but you may keep to the same rule, and think it wiser to avoid difficulties than at all cost to overcome them. And finally, when you are in doubt, open the sac; for though the advantages are, on the whole, clearly in favour of not opening the sac, yet the amount of advantage is not so great as to justify any considerable risk for it. Rough statistics of operations are not to be taken as measures of this advantage. In all the worst cases the sac must be opened; and, of these, a large proportion will die whatever be the manner of the operation.

As to the method of operating, there are many, and some good, anatomical rules on which I shall not touch. They are admirably laid down in "*Lawrence on Hernia.*" I will only give some general rules, such as may be useful in nearly all cases.

In all, you should decide at first, if possible, whereabouts the stricture is, so that your first incision may be fairly over it, and give you room to act on it without needless length of cutting. In femoral hernia, you may be sure that the stricture is at, or within half an inch of, the femoral ring; and this is near enough for guidance for the first incision. In umbilical hernia, the mouth of the sac is always the seat of the stricture; and the middle of your first incision may be right over it. In inguinal hernia, the stricture is, in the large majority of cases, at

or within the internal inguinal ring; and the incision should extend from the internal ring to beyond the external ring, and (according to the characters of the hernia) to a greater or less distance towards or along the scrotum. But, in inguinal hernia, the stricture may be at the external ring, or, being formed by the thickened mouth of the sac, may be pushed up towards the abdominal cavity, or down along the canal, or beyond the external ring to some distance in the scrotum. Moreover, in some rare cases of congenital hernia, there may be two strictures—one at each end of the open *canalis vaginalis*. For these cases, it is useful to apply a rule devised, I think, by Mr. Luke, for ascertaining the seat of stricture; namely, to observe at what point along the course of the hernia the impulse on coughing ceases. For, when a hernia is strangulated, the impulse can be felt as far as the stricture; beyond that, it cannot be felt: therefore, where the impulse ceases, there probably is the stricture; and this part must be fairly included within the length of your incision.

In femoral hernia, your first incision may be vertical, in a line drawn straight down from the spine of the pubes—a projection which you can always easily feel. This incision seldom needs to be more than an inch and a half long, and may sometimes be less. In umbilical hernia, a vertical incision of an inch and a half or two inches will suffice, in the middle line, so as to reach either the upper or the lower border of the mouth of the sac. But I am disposed to believe, though I have not tried it, that in large umbilical herniæ, two incisions, going to opposite borders of the ring, would be better

than any one. In inguinal hernia, the incision should take the direction of the neck and upper part of the hernia, and its length must vary according to the size of the parts to be returned.

Through these incisions you must go on and on, through the several layers which your anatomical dissections of healthy parts will sometimes enable you to recognise, till you come to the sac. The thickness of these layers is more various than you may suppose. Especially in small femoral herniæ, you will often find an unexpected quantity of fat about the sac; and in umbilical herniæ, very much more fat about the mouth of the sac than the thinness of the integument over it would at first suggest.

Through whatever thickness, you must continue cutting in the same direction; and when you are fairly on the surface of the sac, keep to the same line. Do not clean the front of the surface of the sac; do not separate it from the surrounding textures. No good can come of this, but much harm may. You want nothing more than a linear division of the stricture, whether with or without a linear opening of the sac. All that is done on either side of this line is useless or mischievous.

When you have thus fairly reached the sac, and have exposed its neck and mouth or narrowest part, you must proceed differently accordingly as you propose to complete the operation without or with an opening of the sac. In the latter case, you open the sac first near its mouth, and then along the length and full extent of your external incision, and then divide the stricture from within. You may do this on your finger-nail or a

director, and with cares about the intestine and other structures which are insisted on in all handbooks. In the former case, when you intend not to open the sac, you must find where the stricture is, and divide it outside the sac.

Among femoral herniæ, there are differences as to the seat of stricture which I cannot explain to you, but which my cases made very clear to me. In some instances, as you trace up the neck of the sac, you find it tightly banded across by the layer of fibrous tissue called Hey's ligament—a layer traceable as a falciform edge of the fascia lata, where that fascia, bounding the upper part of the saphenous opening, is connected with the crural arch, and is thence continued to Gimbernat's ligament.

Sometimes a fair division of this layer of fibres up to the edge of the crural arch is sufficient to render the hernia reducible; and here, with the reduction, should end the operation. But, in more cases, this is not sufficient; and you may feel the stricture formed by bands of fibres which encircle the neck of the sac, and which must be divided, band by band and layer by layer, till none can be felt. These fibres are part of the deep crural arch, beneath which the hernia has protruded. Very rarely, however, even the division of these is not sufficient; for the stricture is formed by thickening of the mouth of the sac itself. This condition, which is a common cause of stricture in inguinal hernia, is very rare in femoral; but it certainly does occur; and, in any case well suited for the operation without opening the sac, you may try to thin the mouth of the sac without opening it, and thus to make it extensible enough for the

return of its contents. You may try this ; but the chances of success are small. You are much more likely to cut into the sac at some thin place ; and, when you have done this, you had better enlarge the opening and divide the stricture from within.

It is this uncertainty as to the exact seat of stricture in strangulated femoral hernia, which makes it advisable to put-on a strong resolve not to use too much time or force in endeavouring to operate without opening the sac. You will be apt to think, when you have divided one thing, that now you will be successful ; and you try to press-back the bowel. But you fail ; and then you divide something else, and try again ; and now again you fail. And thus you may go-on, till you have done more harm than you would have done by a straightforward opening of the sac and immediate easy division of its stricture and return of its contents. Keep this in mind ; that an easy reduction from an open sac is better than a difficult reduction from a closed one.

In umbilical hernia, the case is simpler. The stricture is always in the tough fibrous tissue of the sheath of the rectus. When you have reached this, commonly going much deeper through fat than you expected, and not only deeper, but further under the sac, you may be able to divide the stricture without opening the sac ; but this is difficult, for the sac is always very thin, and there may be little tissue between it and the fibrous ring. Still it is well to try, but not too long. You are more likely to open the sac at or close by the stricture ; and, if you do this at all, you may as well save time and force by opening it more widely.

In inguinal hernia, the stricture is in many cases, and was in the majority of those on which I operated, formed by the mouth of the sac, thickened and hardened by what appears to have been an inflammatory process, producing a scar-like and contracting tissue. This tissue forms a band about a fourth or a third of an inch in width, and about a line in thickness, and sometimes has a thin sharp inner edge. By the way, let me say that the formation of this band is not the result of wearing trusses. I have seen it very marked in patients who never wore a truss; and I have seen the sac thin and soft in every part in those by whom trusses have been long worn. But, however it may be formed, this annular thickening and contraction of the mouth of an inguinal hernial sac is a common cause of stricture. On account of it, you should proceed at once to expose the mouth of the sac; unless, indeed, you should have found the tissues outside it so tight that you may fairly believe the division of them will be sufficient for permitting the reduction of the hernia. When you have exposed the outside of the thickened mouth of the sac, you may still achieve the reduction without opening, by gradually thinning the mouth—dissecting-off band after band from any portion of it. Sometimes the mouth will yield sufficiently at a part thus thinned to stretch and allow the reduction; but more often, I think, you will fail, and will have to open the sac and divide the stricture from within.

Here, as with femoral hernia, be scrupulous not to spend more than fair force and time for the sake of the reduction without opening the sac. It is a good thing to succeed; a very bad thing to fail. You must measure

how much risk of harm it is right to incur for the hope of doing good.

If the reduction be accomplished without opening the sac, you will have attained the best immediate object of the operation; but remember that fallacies of reduction are possible here as well as in the cases in which no operation has been done; they are, however, less mischievous, for, if the stricture be completely divided, there will be no strangulation of whatever remains in the sac. Especially you may have no fear if, as commonly happens, after returning intestine, some omentum remain in the sac. This will do no harm; but if more than omentum have remained in the sac, and the signs of strangulation be not relieved or lessened, you must operate again and open the sac, regarding these cases in the same light as those of partial or doubtful reduction, of which I spoke in the last lecture.

But suppose the sac opened, as it should be in nearly all bad cases, and in many which, though they are not bad, yet may be called difficult, here may occur the most difficult question of all, What is to be done with the contents of the sac? Of course, in most cases you are to return them; but in many you are not; and which are which?

Look first to the character of the fluid which, in most cases, you will let-out of the sac. In most cases, not in all; for, in some small femoral herniæ, especially in very thin dry people, and in many umbilical herniæ, and in any that contain a large quantity of omentum, there may be no fluid, or too little to be distinctly seen. But if there be enough to judge from, you may deem it a good sign if the fluid is clear, and yellowish like serum, or, rather,

like liquor sanguinis—for it will coagulate spontaneously. This indicates only such an exudation of fluid as may come from a simply congested piece of intestine, or from a piece not badly inflamed; and the cases would be rare, if there can be any, in which intestine found behind fluid such as this might not be returned. The same may be said when with fluid such as this there are flakes or bands of lymph or fibrinous exudation; for these tell of only such inflammation as may safely be recovered from when the intestine is returned. I am disposed to say the same of the cases in which the fluid is clear, but more or less deeply blood-stained; for this exudation of blood-cells or blood-colour is not characteristic of any serious morbid change in either the sac or its contents. But when the fluid of the sac is turbid, brownish, muddy, it tells of more advanced changes in the intestine or in the omentum; and the further it goes in this direction the more carefully must you consider whether these are in a fit state to be returned. You will probably have to decide that they are not fit, when the fluid has a distinct faecal or putrid odour; and of course they are not fit when the fluid has faecal matter mixed with it.

I do not venture to say that the characters of the fluid contents of the sac of a strangulated hernia are to be absolutely relied-on as guides for practice; but they are good evidence to be taken into the general account, for they fairly represent the state of mere congestion or inflammation, or more or less advanced decay or decomposition, or giving-way of the walls of strangulated intestine and omentum.

Not rarely, when you have divided the stricture and



returned the contents of the sac, fluid runs from the peritoneal cavity. I do not know any rule of practice but that you must let it run as long as it will, and, if it be of very unsound appearance, not close the wound till the fluid has ceased to flow, if even then.

As to the omentum which the sac may contain, and what to do with it: if there be a small quantity—say two or three square inches—and this be not adherent, and not more changed than by congestion or slight inflammation, there can be no question that you are to return it after the intestine; and if there be a piece of even very large size, and not more changed in texture, you had better return it if you can without much force or expense of time. But it sometimes happens, when the abdomen is tense with over-filled intestine, that you cannot return a large piece of omentum without much difficulty. What then? Shall you cut it off or leave it in the sac? I advise you to leave it. I believe that the cutting-off, with the necessary ligatures or other fastenings of vessels, adds to the dangers to life; while the leaving of omentum is only sometimes followed by greater difficulty in the fitting of a truss—a difficulty which is not great enough to justify any risk of life.

Still more may this rule of leaving omentum in the sac be observed when a large piece of it is hardened and thickened as by old disease. When a small piece is thus changed you may, I believe, return it.

When omentum is adherent to the sac, but in other respects fit to be returned, you should break the adhesions and return it, after stopping all bleeding. If it be not fit to be returned, leave the adhesions; and in

any case do not break adhesions so near the mouth of the sac that their vessels are likely to bleed into the abdominal cavity.

When omentum is sloughing, or nearly sloughing, leave it, that it may cast its sloughs out.

But the chief questions in these operations are concerned with the state of the strangulated intestine and the manner of dealing with it. You are to judge chiefly from the colour and the tenacity. Use your eyes and your fingers ; sometimes your nose ; very seldom your ears, for what you may be told about time of strangulation, sensations, and the rest, is as likely to mislead you as to guide aright.

As to colour, any tint, from the natural grey through various shades of rosy or ruddy pink, or redness, up to the deepest crimson, even verging on blackness, may be consistent with fitness for returning of the intestine, if the texture be good. All these tints may be due to congestion and stagnation of blood, or to extravasation of blood into the intestinal walls ; and all these may have been without such inflammation as would spoil the texture of the intestine, and may not have endured long enough to kill it. I am disposed to say that you may return intestine of any colour short of black, if its texture be good ; if it feel tense, elastic, well filled-out, and resilient, not collapsed or sticky ; and the more the surface of the intestine shines and glistens, the more sure you may be of this rule.

When a piece of intestine is thoroughly black, I believe you had better not return it, unless you can be sure that the blackness is wholly from extravasated blood. It may

not yet be dead, but it is not likely to recover ; and, even if it should not die after being returned, there will be the great risk of its remaining unfit to propel its contents, and helping to bring on death by what appears very frequent—distension and paralysis of the canal above it. But, indeed, utter blackness of strangulated intestine commonly tells of gangrene already ; and of this you may be sure if the black textures are lustreless, soft, flaccid, or viscid, sticking to the fingers or looking villous. Intestine in this state should never be returned.

Colours about which there can be as little doubt, for signs of gangrene, are white, grey, and green, all dull, lustreless, in blotches or complete over the whole protruded intestine. I cannot tell why there should be so many colours in different cases, or sometimes even in the same case ; but all are alike certain signs of gangrene, and they are always combined with loss of due tone and texture of the intestinal wall. Intestine with these marks, even though they be small, must not be returned.

Then, as to the texture of the protruded intestine : it should be, for safety of return, thin-walled, firm, tense, and elastic, preserving its cylindrical form, smooth, slippery, and glossy. The further the intestine deviates from these characters, the more it loses its gloss and looks villous, the more it feels sticky, and is collapsed and out of the cylinder-form, the softer and more yielding, the more pulpy, or like wet leather or soaked paper, the less it is fit for return. And when these characters are combined with such bad colours as I have described, the intestine must be taken to have perished, and had better

be laid open, that its contents may escape externally and do no harm.

But, short of gangrene, there may be ulceration of the walls of the intestine. The usual place for this is where the intestine is girt by the mouth of the sac, and it is most frequent in femoral herniæ long strangulated. In these it is especially the sharp hard edge of Gimbernat's ligament which seems to cut into the intestine, thinning its wall and at last piercing it: and the chance of this having happened is enough to justify the rule that, where the strangulation has been sharp and long, the intestine should be gently drawn-down after the stricture is divided, in order to see that there is no great injury of its walls where the chief pressure of the stricture has fallen on them.

Here, too, because they are similarly dangerous to life, I might speak of laceration of the intestine in too violent attempts at reduction, or wound of it in operation; but I have no personal experience of such cases, and can add nothing to what you may read in the best treatises on hernia—such as that of Sir William Lawrence, or in the chapters devoted to hernia by Mr. Erichsen in his *Science and Art of Surgery*, or by Mr. Birkett in Holmes's *System of Surgery*. These will supply you not only with their authors' experience, but with what they have gathered and set in order from the writings of others. Limiting myself to what I have studied in my own cases, I must omit many things besides ruptured and wounded intestine; such as the various complications of strangulated hernia with hydrocele and misplaced testicle, with varicocele, and with accidents of the operation, such as

hæmorrhage from the epigastric or the obturator artery. Some of these things I have never seen ; others I have seen only once or twice, and have learned concerning them nothing but what you may learn by reading the works to which I have referred you.

But, as to the treatment of sloughing and ulcerated intestine of which I was just speaking, I will only say that it has always seemed to me more prudent to incur a great risk of having a permanent external fæcal discharge by leaving the intestine at the wound, than to add to the risk of life by returning any thing which it may seem possible to repair by suture or any such means. Of course, these means are not to be thought-of if the sloughing or ulceration be of more than very small extent ; but even in the smallest, unless in some very rare cases, I would not add to the inevitable risk of life by returning the damaged intestine. In cases of hernia, the saving of life is so much more important than anything else, that we ought not to incur a risk of life for anything less than the highest probability of saving a patient from some life-long distress.

## LECTURE IV.

THE former lectures have related to the diagnosis of strangulation of a hernia, and to the operation necessary for its relief. This last will be on the treatment of cases after operation. In looking over my notes of hernia for illustration of this matter of after-treatment, I was struck with the great difference between the practice of late years and that of thirty or more years ago. In reference to all the subjects of the preceding lectures—the discrimination of the cases needing operation, the modes of operating, and generally, the pathology of strangulated hernia—knowledge has, we may believe, increased, but without any material change of opinion; but, when we come to questions about treatment of patients after operation, we seem to know, and certainly we believe, things widely different from those which were generally believed when I was a student.

The present general rule of practice after operation, in cases likely to go on well, is to do what is called nothing; to wait till some reason for interference is manifest; and, while waiting, to take care that the patient shall have fit bedding, fit air, fit food, quietude, and good nursing. All these prime conditions of health are called ‘nothing.’ The contrasted ‘something’ would be bleeding, active purging, or other restless interference with the natural course of recovery, such as was in vogue in the earlier years of my case-taking, and such as had not quite

ceased twenty-five years ago, when I became assistant-surgeon to the hospital. In this contrast you will see only an illustration of the great change of opinion respecting treatment which may be observed in a wide range of medical practice, as in cases of fever, acute rheumatism, pneumonia, and all acute inflammations—a change shown, not by substituting one remedy for another, but by letting many diseases and the effects of many injuries take their natural course, in the confidence that they will come to a natural good end, and that we have no medicines potent to alleviate or cure them. But let me say that, while I have no doubt that the present general plans of treatment are better than the past, I yet do not believe that the past plans were so mischievous as some have told of them. I have no recollection of serious harm being often done by bleeding in the many cases of illness, whether slight or severe, in which, during my apprenticeship, I practised it. In a few cases I think it was mischievous, but in the great majority it was harmless. In many, it gave such relief from pain or other distress as naturally strengthened the belief that it did real good; and in a few cases I do not doubt that it was beneficial. Still, in cases of strangulated hernia, whether before or after operation, I think you never need bleed a patient. I do not believe that bleeding ever saved the life of a hernia-patient which, but for the bleeding, would have been lost.

And as for purgatives, though I believe they were often mischievous and more often unnecessary, yet I do not doubt that they were, and still may be, sometimes very useful; and I wish I could tell you more exactly than I

can the class of cases in which they should be used. At present, I know only one—the class, namely, in which it is clear that strangulation has occurred while the bowels are overfilled, and in which the strangulation is acute and quickly relieved.

Now for the general rules of treatment after operations for strangulated hernia. Bear in mind the complicated cases with which you may have to deal. In each case there are, or may be, these constituents: the intestine damaged by displacement and by being forcibly replaced; the operation-wound; the effects of an anæsthetic; the intestinal disorders which, at least in many cases, preceded the strangulation, and may continue after the operation; the effects of aperients and other medicines given for this previous disorder or for the strangulation; the inflammation or worse than inflammation of the sac and its contents, which does not subside immediately after even a successful operation.

When a case has been timely operated on, all these things may amount to nothing worse than may be left to the course of spontaneous recovery; and a case that goes on well requires that ‘nothing’ in the way of treatment of which I spoke just now. But, when anything goes amiss, you must have in mind all the things I have enumerated, in your endeavour to interpret the signs of wrong and to amend it. Very few cases are more difficult to manage than those which do not go on well after operation for hernia. There are terribly few which, having gone out of the right course of recovery, can be brought back to it.

What, now, are the signs of going-on well? Chiefly



a consciousness of complete relief; that is, of relief not only from the local distress, but from the general misery. Deceptive as sensations often are, this rarely is; and, if a patient be not conscious of relief, you must keep on the alert, and suspect that something is wrong. Besides, there should be no pain or acute fever. Mild traumatic fever there may be; but there should be no more; no nausea or sickness, but general quietude or sound sleep, a gradual recovery of appetite and strength, and, after a time, action of the bowels. I say, after a time, wishing to be indefinite. Sometimes the bowels act very soon after the operation, and this may be harmless; but I think it is not good, for it indicates either the effect of physic wrongly given before the operation, or some irritation of the bowels which would be better at rest.<sup>1</sup> They do best who, while relieved from their distress, have no action of the bowels for some days. I know no necessary limit to the quietude in which the bowels may be left. In one of my cases, they did not act for nine days after the operation; and I have heard of others where, without any disadvantage or discomfort, there was still longer inaction. But this is, I think, a good general rule—to leave the bowels at rest for four days after the operation; then, if all seem well (not otherwise), to order a simple enema; and if this be not sufficient, some aperient. I know no advantage in leaving the bowels longer inactive than these four days; and I had one case in which great inconvenience, to say the least, was occasioned by a very large accumulation.

<sup>1</sup> Note IV.

After the action of the bowels, if all still go on well, there is no need of considering anything but the patient's comfort ; and the local treatment and the diet may be of the plainest kind. Excess is more likely to be mischievous than sparseness.

Among cases that do not go on well, there is a great variety ; but I shall speak of those alone in which the wrong is in something peculiar to hernia. Of course the wound of the operation may lead to any of the evils that may follow other wounds, as erysipelas, pyæmia, and the rest ; but these I shall almost pass by.

Among my cases, I find some in which ill-looking symptoms, such as diarrhœa or colic followed the operation, but meant no serious mischief, being only the continuation of the intestinal disturbance which preceded the strangulation. I have already spoken of this matter ; but it is worth repeating, that it is common for the descent and strangulation of a hernia to be preceded by some intestinal disturbance, the signs of which may be suspended during the strangulation, and renewed after the operation. Whatever the disturbance, it may be treated, or left alone, as if no operation had been done ; but it must not be forgotten in estimating the meaning of any symptom of ill-doing.

Of these symptoms, one of the chief is vomiting. If a patient vomit once or twice soon after an operation for hernia, it may only be because the stomach was filled with secretions before the operation, and now finally empties itself. In this is no harm—perhaps some good. But, if the vomiting continue, it may be a sign of the gravest import. It may, indeed, be due to chloroform or ether.

I have seen several instances of this, and among them one in which chloroform-sickness continued for three days after the operation, endangering the patient's life. Generally you may distinguish the vomiting due to chloroform from that due to peritonitis or unrelieved strangulation, by its being attended with horrible nausea, like sea-sickness; by its producing no faecal fluid or abundant gastric secretion, there being more retching than vomiting; and by the patient's feeling relieved of his hernia, however wretched he may feel with his nausea. If the pain and distress of the hernia be relieved by the operation, and, except for vomiting, all seem well, you may be nearly sure that the vomiting is due to chloroform, and commonly you must wait till it spontaneously subsides. I believe you cannot cure it, and food put in the stomach only aggravates it. The patient had better be without food, if in fair strength; but, if very feeble, he had better be maintained with enemata of milk, eggs, beef-tea, and wine.

If vomiting go on for six or more hours, or for days, after the operation, and be not due to chloroform, it is a very bad sign—I had nearly said a mortal one; for generally it tells that the operation has failed in its design. Either the strangulation is not relieved, or the intestine is paralysed above the strangulation, or there is peritonitis, or sloughing, or perforation of the intestine, or some such trouble. Very rarely the untoward conditions indicated by continuous vomiting are relieved spontaneously or with repeated doses of opium.

The persistence of abdominal distress, with tension and pain and colic, after the operation, is not so serious.

If other symptoms be relieved, these probably will be ; and they may generally be treated with large enemata or aperients, such as the sulphate and carbonate of magnesia. But there is no need of haste to give these things. The abdominal troubles which they are to relieve are not due to serious disease, but probably to intestinal accumulation, which began before the strangulation, would be very slow to destroy life, and may be allowed to remain till it can be treated without risk. In such a case as this—a not very rare case—when all seems well except the abdominal pain and tension, be on the watch. If there be no change, do nothing. With time, the intestines will empty themselves. If there be increase of pain, without increase of pulse or breathing or other evidences of fever or inflammation, give enemata or aperients. I am sure you may manage cases of this kind better and more deliberately than I did some of those which I have recorded. I see now that I was over-busy with them, and was only very fortunate in that I did no harm.

A large group of cases, much worse than these, may be made of those in which the operation gives little or no relief : all goes on after it as all did before, or everything becomes worse. Few cases can be more grave than these. You may think yourselves happy if, from twenty such cases, you can save one.

The failure of relief from the operation may be due to the utter exhaustion of the patient. I have had to operate on patients already dying. I could not refuse to operate, for I could not be certain that it would be useless ; but it proved useless, and seemed mischievous.

The intestine was returned, and all put right; but the patient was too exhausted, as one may say, to be conscious of relief, and went on dying, although carefully fed and nursed.

Or the failure of relief may be because the strangulation remains—a constricting band or misplacement of the intestine, or some such thing, having been overlooked. In such a case, especially if you have not opened the sac, you must open the wound and the sac; enlarge the opening through the stricture; find, if you can, strangulated intestine or whatever may be wrong, and, if possible, set it right. You may be so fortunate as to succeed—more fortunate than I have been. But then, in two of my cases, an internal and distant strangulation coincided with that of the hernia. This was irremediable—could not be reached; and the second operation was as useless as the first.

But by far the most frequent cases in which the operation gives no relief, or only some slight and very brief relief, from the signs of strangulation, are those in which the intestine does not recover itself. It remains nipped, powerless, congested or inflamed, spoiled, and incapable of contraction; while the part of the canal above it becomes distended, and after a time powerless, the abdomen becoming constantly more tense, though it may be with less turbulence of the intestines. This condition is most frequent in the old, and after long strangulation; it is commonly attended with peritonitis; and no doubt the inflamed state of the muscular tissue of the intestine, both in and above the strangulated part, is often the cause of the loss of muscular power, or a serious hindrance to

its recovery.<sup>1</sup> But peritonitis is not a necessary part of the calamity. I believe I have had cases in which no peritonitis existed beyond the strangulated part. In such cases as these, you may find the best hope, though the best is seldom good, in opium, food, and wine, all of which you must give by the rectum if the stomach will not retain them. Your object must be simply to keep the patient alive while, in time, the intestinal canal being at rest, may regain power. Very small quantities of food may suffice for this—a few spoonfuls by the mouth every hour or two; and, twice or three times a day, injections into the rectum of milk, beef-tea, egg, wine, and laudanum, mixed all together.

Very similar to these cases are those in which peritonitis, having begun before the operation, is not relieved by it. There is, plainly, no reason why the relief of strangulation should at once remedy the peritonitis which the strangulation produced; and it sometimes seems to continue quite unaffected. Indeed, you had better expect that this will be so, and follow what is a very good general rule—that, namely, of giving opium directly after the operation in all bad cases of strangulated hernia, unless there be some clear reason for not giving it. I have seen no harm come from this plan, and I think it has sometimes done real good. What are the bad cases I have already told you? In any or all of them, you may give a grain of opium, or an equivalent subcutaneous injection of morphia, directly after the operation; and then watch and determine whether to give more, or what else to do.<sup>2</sup> Especially,

<sup>1</sup> Note XIV.

<sup>2</sup> Note XV.

you may expect to have to give wine very soon after the operation, for the patients are generally feeble.

Thus, then, you may have in mind four sets of cases in which the operation for strangulated hernia, though, to all appearance, well done, does no good at all, or too little to be counted. It may be so in patients utterly exhausted; in cases of persistent strangulation at the hernia or elsewhere; of intestine rendered powerless; of continuous peritonitis. Of all these I have seen examples. There may be others which I have not seen or have overlooked. From all of these you may distinguish in thought, and generally in fact and practice, those sets of cases in which untoward events arise after a clear interval of relief from the operation. All may go on well, or at least not badly, for a time; the patient may have a clear sense of relief; and the sickness and other bad symptoms may cease for hours or some few days; and then come trouble and disappointment.

The cases that may be thus grouped are many and various. I find among my notes instances of acute inflammation of the hernial sac and its coverings; simple acute peritonitis, such as might be called traumatic; asthenic peritonitis, probably of erysipelatous nature; acute peritonitis, with rapid collapse, from intestinal perforation or rupture; simple inaction or paralysis of intestine. And to those which were peculiar to operations for hernia may be added other calamities, such as might occur after any operation, as diffuse cellulitis, erysipelas, phlebitis, and others.

It is not possible to speak of all these things now—

hardly even appropriate ; for, though those in the first list are associated with hernia, they are not peculiar to it, and their pathology and treatment must be studied on a broader field. The peritonitis must be dealt with according to the same rules as that which has nothing to do with hernia, using great care to determine which of the forms I have enumerated is in each case present. The strangulation may itself cause peritonitis ; and this, as I have said, beginning before the operation, may continue after it. The wounding and exposure of the peritoneum may excite its inflammation, or greatly aggravate that which existed before the operation. In both these sets of cases, the signs of peritonitis will be observable directly after the operation, or, at the furthest, within twelve hours after it ; and these will generally be cases of acute, or, so far as the constitution of the patient will allow, of sthenic inflammation. But you may generally distinguish from these the cases in which peritonitis sets-in after a longer interval, and in which it is rather of an asthenic type, whether it come from giving-way of the intestine, or from such conditions as would produce erysipelas after external injuries.

Do not suppose me to pretend that, in every case of peritonitis after hernia, you can easily determine to which of these different types of inflammation it belongs. You can determine often ; you should try to do so always ; for according to the type of inflammation must be your treatment. In the sthenic inflammations, you may give great comfort and help to recovery by free local bleeding with leeches, by large poultices over the abdomen, by weak saline and alkaline drinks, by the plainest and least



stimulating diet. In the asthenic, opium is the only remedy that is generally useful. It used to be calomel and opium ; but I believe the calomel did harm oftener than good. And with the opium must be rest and warmth, and liquid nutriment and diluted wine. And I can state no more general rules than these ; for the rest of the treatment must be determined separately for each case.

Now, besides these very serious evils that may follow operations for hernia, some local troubles may ensue, of which a few are worth telling you of.

Perhaps the most common is acute inflammation of the hernial sac, alone or with the immediately adjacent part of the peritoneum. It is, I think, most likely to happen after operations for large herniæ in old people, when considerable force or time has been used in the reduction. You may know it best by the localised pain and tenderness with acute fever, without the signs of unrelief or of general peritonitis of which I lately spoke. There is no severe illness, but the general condition appropriate to a sharp local traumatic inflammation ; and you may treat it, in this view, with complete rest and warm moist coverings of the part, and very little food ; and, in the acute cases in robust people, with copious leeching. In the acutest case which I have seen, I applied ninety-eight leeches in three days after the operation, with great comfort, and I think great advantage, to the patient. That was twenty years ago ; but it would still be right to do the same.

Another local trouble is acute inflammation of the cellular tissue outside the sac. It is chiefly seen after operations for scrotal hernia and for deep-seated femoral

hernia. Commonly, the case appears going on well for a few days, and then comes a blaze of inflammation in and beneath the skin, leading sometimes to abscess, sometimes to diffuse suppuration. There is in these cases nothing peculiar to hernia. The same troubles may, as you know, follow any other operation; and they always need the same general means of treatment. I have never seen serious evil ensue in any case of the kind

I might tell of other hindrances to recovery from the operation for hernia; but I limit myself to those of inflammation of the testicle, of sloughing of the scrotum, and others which I have been able to study practically, and I pass the others by, as I have done many other things, especially the complications of herniæ with various local diseases, such as hydrocele, varicocele, undescended testicle, and others. I have seen only one or two cases of each, and can tell nothing which is not already well told about them. Indeed, for a conclusion, I must say that, though to some of you it may have seemed excessive to give four lectures on strangulated hernia, I have treated the subject very superficially, very incompletely. One lifetime is not nearly enough for its complete personal study, in even so large a field as this hospital supplies.

## *CHRONIC PYÆMIA.*

---

CHRONIC PYÆMIA is seldom spoken of, and in many of the best systems of medicine and of surgery is not so much as referred to. Yet cases to which the name is appropriate are not very rare. Such cases resemble the well described and typical pyæmia in the formation of widely dispersed shapeless collections of pus or other allied inflammatory matter; in the probability that these formations are due to some infection of the blood by the entrance of diseased inflammatory products; and often in the occurrence of rigors and profuse sweatings, of phlebitis, and inflammations of joints. But they differ from the acute type in that their course extends, continuously or with relapses, over many weeks or months, or even over years, and is often free, at least in its later stages, from all severe general disturbance of the health, and from nearly all risk of life.

A record of some of these cases may promote a more general knowledge and a better study of the disease; a study which is much to be desired for the avoidance of the errors apt to arise, in this as in other cases, from a too exclusive consideration of what we regard, perhaps wrongly, as types of diseases.

The intimate relation of acute and chronic pyæmia

may occasionally be seen in cases which, after presenting for a time all the characters of the acute form, assume a very slowly fatal course. Of these I need not give any detailed examples. It may be generally said of them that, after presenting the ordinary signs of acute pyæmia, the disease continues week after week steadily destroying the health. Its course is indicated by slow wasting; all the tissues becoming dry and shrivelled; by increasing pallor; by decreasing muscular and mental power, the voice becoming weak, the mind slow and dull, and at night often wandering; by quickness and feebleness of pulse and breathing; by frequent and sometimes profuse sweatings, especially when there is much suppuration; by less frequent chills or rigors; by increased thirst and usually aversion from food; by dryness and shrinking of granulations. I do not pretend that the general signs of pyæmia can in every case of this kind be distinguished from those of hectic or of mere exhaustion; yet commonly they are distinct enough, and the distinction becomes very nearly certain when, as it often happens, there appear occasional patches of redness on the skin, or abscesses with flaccid walls, or œdema of a foot or hand, or indications of pneumonia.

It is not, however, of cases such as these that I wish to speak. I refer to them only to make more evident the relationship between acute pyæmia and those instances which differ from it, not only in their slow progress, but in their comparatively mild general symptoms. To these the name of chronic pyæmia is especially appropriate.

I. *Ligature of subclavian artery—Pyæmia on the 18th day—Pyæmial arthritis, lobular pneumonia, and pustular eruption—Secondary hæmorrhages—Death on the 65th day.*

In June 1860 I tied the right subclavian artery of a man, 54 years old, who had a large axillary aneurism. He had fair general health, but in textures appeared older than his age. All went on well, except that his pulse, for some few days, had gradually increased in frequency, till on the 18th morning after the operation, he had a very severe rigor, followed by heat, and then by profuse sweating. On the next (19th) day he felt shaken, and rather feeble; and he complained of pain like rheumatism in his left shoulder; but his pulse was slower, and except for some recurrent sweatings, he had no general signs of pyæmia or other severe illness. On the 20th day the ligature was cast-off; and on the 21st he felt and appeared as well as before the rigor, and might have been thought convalescent. He had taken large doses of quinine and good food and wine. On the 22nd day a profuse sweating occurred, and the pulse rose; and on the 24th a very severe pain ensued in the right elbow, and, lasting for two hours, was followed by great exhaustion and sweating, and increased rate of pulse and breathing. On this day, also, there was an increased discharge of pus from the wound, apparently from suppuration in or about the aneurismal sac. / 5.32

During the next ten days (to the 34th) the patient appeared to lose flesh rather quickly. He often suffered severely with pain in the left shoulder and right elbow; nearly the whole of the right upper arm became very large with œdema and appearances of suppuration pointing at the elbow; he slept little, had profuse sweats, frequent chills, and no appetite; his pulse became weaker and was seldom under 100; his breathing less full, and generally 30 in the minute. Pus was freely discharged, and welled-up through a small opening which alone remained unhealed at the wound. Full quantities of stimulants and all the food that could be taken seemed to produce no

effect. But in the next week (35th to the 41st day) a marked improvement in the general symptoms took place. The patient every day called himself 'better,' or 'quite well;' he slept well, and rarely sweated; his pulse ranged from 96 to 108, and was always soft and moderately full; his breathing became daily slower, his tongue was always clean, his appetite pretty good; his bowels regular; and he sat up in bed for a short time every day. The œdema of the arm and the suppuration about the sac appeared stationary; but there was neither pain nor rigor.

On the 41st day, the pulse, without evident reason, rose to 120 or more; and on the 42nd secondary hæmorrhage, to the amount of a pint, ensued through the opening at the wound. In the next three weeks, to the 61st day, bleeding to a few ounces occurred twice. The suppuration in the upper arm was profuse, with discharge at the elbow, and after a time at the axilla through an opening spontaneously formed. (After the formation of this opening the operation wound healed in two days.) The patient became constantly thinner and weaker; yet he often said that, but for his local ailments, he should feel quite well; and indeed he had no signs of general illness more than any one would have with losses of blood and profuse suppuration. Yet twice, during these weeks, he had thinly scattered pustular pyæmial eruption on the trunk and limbs, and for some days near the end of the time had quick breathing and cough connected, most probably, with pyæmial pneumonia.

On the 63rd day severe hæmorrhage again occurred, and then a sharp rigor, followed by heat and sweating. Again all these were twice repeated on the 65th day, and then he died.

At the examination after death (in addition to the disease connected with the aneurism, which it is unnecessary to describe here), some purulent deposits were found in firm circumscribed spots in the upper lobe of the right lung; the left shoulder-joint was full of pus, and the cartilage of the humerus was thin, soft, and partially detached; and in the right elbow-joint all the articular cartilages were removed, and the ends of

the bones were rough with superficial ulceration. The lower fourth of the right humerus was bare and surrounded with pus.

II. *Lithotomy—Rigors on the following day—Repeated suppurations in the sterno-clavicular region—Rigors and epileptiform convulsions—Suppuration in the prostate—Phlebitis—Recovery.*

In July 1859, I performed lateral lithotomy on a gentleman 34 years old, a patient of Mr. Hewer. He was of naturally robust health, but now worn-down by suffering and by residence in China. The stone was large and soft. The operation had in it nothing worth describing; but in the course of the day after it the patient had three sharp rigors, after as many times of passing urine through the urethra. During the next day he began to complain of pain, like that of rheumatism, about his left shoulder and clavicle. This continued and increased, and was soon attended with increasing swelling, and, at the end of the first week after the operation, issued in the formation of a large deep abscess over the lower left cervical and subclavian region, which abscess was opened. During the same week the pulse was seldom under 120; and frequent profuse sweatings occurred; but with these exceptions there was nothing materially different from an ordinary favourable progress after lithotomy.

In the second week recovery continued, and at its end the patient was able to leave his bed and walk to his sofa every day; his urine passed freely through the urethra; and 'he had not a bad symptom.' But he was annoyed with 'prickly heat,' such as he often had in China, and with the continued suppuration about the clavicle, for which two more punctures were necessary, and with which some sloughing of the subcutaneous tissue was now connected.

Sixteen days after the operation, after a rather restless night, but with no other warning, he had a rigor of the greatest severity; then a long hot stage, and then profuse sweating, which lasted through the day. They were like those of very

bad ague; and he had had ague ten years before. Large doses of quinine were ordered.

Soon after the rigor, a part of the swelling near the front of the neck, which had been much raised and boggy, as if there were sloughs under it, almost completely subsided; yet there was no increased external discharge of pus. During the night, there was profuse sweating; but on the next and following days, to the 25th, the patient's condition returned to what it had been before the rigor, except that he sweated more and had a slower pulse. The only apparent consequence of the rigor was the formation of an abscess over the upper piece of the sternum and the adjacent costal cartilages, which was let out on the 23rd day. With this exception, he appeared convalescent.

But on the 25th morning, after much distress in the bladder and rectum during great part of the night, the patient had an epileptiform seizure which lasted an hour, and was followed by great rapidity of pulse and profuse sweating. Before this 'fit' the parts about the abscess over the sternum were observed puffed-up and swollen; after it, they had quite subsided, though without any visible discharge of pus. In connection with this 'fit,' which, in all its relations, appeared to be the equivalent of a rigor, a large abscess formed in the left lobe of the prostate. But the general health of the patient suffered no other disturbance than would have been produced by an ordinary abscess in the same part; and when the pus was discharged, by puncture through the healed lithotomy-wound, he was at once relieved from all trouble, general as well as local.

Thirty-six days after the operation, when the patient's health was so far restored that he was daily walking or riding out, he was suddenly seized with severe cramp-like pain in the legs, the first symptom, as it appeared, of phlebitis of the posterior saphenous veins, which, in succession, became hard and tender at and below their junction with the popliteal. He was for many days troubled with the lameness and œdema thus caused, but when these were remedied, his recovery seemed complete, except in that the prostate-abscess led to the formation of a small



fistulous communication between the bladder and rectum, which only slowly closed. He had good health afterwards so long as I knew him.

In both of these cases, condensed from full reports, the general characters of pyæmia are clearly marked: yet they differed widely from the acute type in respect of both time and intensity.

A 'typhoid' state is commonly referred to as most characteristic of the general condition of a patient with pyæmia.<sup>1</sup> Certainly nothing 'typhoid' was observable in either of these patients. Both of them, for many days together, appeared and felt as if they were convalescent, even while, as we may believe, the mischief of pyæmia was at work in them.

It may be observed, too, that in both these cases the healing of the operation-wounds was unaffected by the pyæmia. The same fact may be commonly noticed in chronic pyæmia; and even the healing of one pyæmial abscess while another is forming, and while the patient is being gradually exhausted is not rare; but in these cases the healing of the wound is rather by contraction and drying than by the organisation of new tissue.

The cases of chronic pyæmia longest in duration that I have yet seen, occurred in connection with acute necrosis (so-called)—*i.e.* necrosis apparently due to acute diffuse suppuration between a bone and its periosteum. The frequency of death from acute pyæmia in this disease is well known; yet I think there are no cases of pyæmia in which death is more often escaped. Neither are there any among which better evidence may be found that the presence of pus is not essential, as the starting-point, for what we assume to be a pyæmial infection of the blood.

<sup>1</sup> I should not myself so speak of it. Among even the worst cases of pyæmia under my own care, both in the hospital and in private, many, and I think the majority, of the patients have either never been 'typhoid,' or have been so for but a short time, and then have passed into the fatally exhausting form of the disease described at p. 156.

III. *Acute necrosis of the left os calcis—Phlebitis—Abscesses—Acute inflammation of the right knee-joint—Necrosis of the left femur—Inflammation of the elbow and hip-joints—Symptoms extending over three years.*

In September 1859, I saw a lad, 11 years old, of healthy constitution, and living in good circumstances. He was a patient of Mr. Sainsbury, to whom is due whatever credit may be given to medicine for an escape from pyæmia. In July 1858, he had had gastric or typhoid fever of great severity, attended with tympanites and a very painful state of several joints. But from this he had completely recovered. In May and June 1859, he had numerous boils; and on the 6th of July was almost suddenly attacked with a severe pain in his left heel and ankle. This was ascribed, with fair reason, to excessive exercises at cricket, and in gymnastics during which he hung on a rope by his heels for a long time.

On July 7th the pain was less; but at night it became worse, and he put his feet into cold water to relieve it. During this night he became delirious; and he continued so next day, with swelling and apparently great pain in the ankles, especially the left one.

On July 9th, Mr. Sainsbury found him with acute fever, delirium, abdominal distension, and general 'typhoid' symptoms. Next day the integuments below the left ankle-joint and heel began to slough; and in some days following, the sloughing extended rapidly, opening the ankle-joint, or that of the os calcis and astragalus, or both, and leading to the necrosis of a large portion of the os calcis. For many days he appeared dying—typhoid and exhausted, with rapid wasting; but he gradually recovered. The large piece of the os calcis, with the attachment of the tendo Achillis, remained widely exposed; and a large portion of integument separated.

During this, the acutest part of his illness, occupying nearly two months, the patient had inflammation of the lymphatics or veins, or both, of the left limb; swellings seeming to threaten suppuration, but subsiding, on the arms; and an abscess on the

front of the upper part of the right leg, which was opened and healed.

In the third month the right knee-joint became acutely inflamed, with severe pains, and quiverings and startings of the limb, indicative of ulceration of the cartilages, and articular surfaces of the bones. This ended with contraction and firm ankylosis. In the months following, while the patient's general health was so far improved that he seemed to suffer with nothing but the feebleness of a very slow convalescence, there were repeated inflammatory swellings about the hip-joints, and on one side; but none of them suppurated: they subsided, some during the repeated application of tincture of iodine, some while using cold compresses. Month after month thus passed, and in the summer of 1860, the abscess by the right knee formed again and re-opened, and necrosis of the left femur occurred, with repeated openings of sinuses and separations of sequestra.

In November of the same year, a very acute inflammatory attack occurred at the right elbow-joint, threatening suppuration of the joint, and leading to contraction and partial stiffness.

In February 1861, the greater part of the dead portion of the os calcis, the seat of the first necrosis, separated; and thenceforward healing went on, and was in the course of the year completed. The greater part of this year passed without any recurrence of active disease; and the patient, crippled in the left foot, right knee and thigh, and right elbow, recovered better health and strength than he had had since his illness began. But in November 1861, another acute attack of inflammation of the right elbow-joint occurred. It began, as all of the same kind did, without any apparent cause, suddenly, in the night, with severe pain, which continued many days; was attended with great heat and swelling, and with redness and œdema of the integuments, and was followed by almost complete stiffness of the joint. In March 1862, there ensued an equally acute inflammation of one hip-joint, just like an ordinary acute 'morbus coxæ;' but this also, treated like that at the elbow, with leeches and cold compresses, and rest, subsided, and left

only partial stiffness. In the summer of 1862, the right leg suffered for a month with erysipelas, and a large abscess formed in the left thigh; and in November of the same year, the right elbow-joint was for the third time the seat of acute inflammation. From this time onward health was gradually without interruption completely recovered, and with complete action of the joints with the exception of the left ankle and the right knee.

Strangely unlike as this case may seem to the ordinary cases of pyæmia—running their fatal course in a week or two, or, as it is said, ‘occasionally’ prolonged to seven or eight weeks—it is yet evident that the unlikeness is almost only in respect of time. If the events of this case had all occurred in three months, instead of three years, it would have been an ordinary case of pyæmia ending well. But difference of duration is never alone sufficient to indicate a difference in nature, or to justify a difference of substantive-name, among diseases. However prolonged, this and the like cases are still pyæmia, chronic or relapsing.

The absence of nearly all respect to time is, indeed, one of the many characters in which pyæmia differs from the most marked specific diseases; and this corresponds with the absence of specific shape in the pyæmial deposits, abscesses, and necroses; with the common characters of pyæmial pus and other products of inflammation; with the absence of all indication of a single constant infecting material; and with the transmutability (as it seems) of pyæmia, with erysipelas, cellular inflammation, and puerperal fever.

It may be a question whether, in such a case as that

last related, there was any abiding disease of the blood or tissues in the intervals between the successive outward evidences of pyæmia. We can judge, in such a question, only by the analogy of other relapsing diseases—*e.g.* of secondary syphilis; and from this we may believe that, during the whole period of liability to outbreaks, there is continuous, though not stationary, disease.

In some of the cases of chronic pyæmia connected with acute necrosis, the secondary affections are limited to the bones, or greatly predominate in them. A girl, 11 years old, who was under the care of Mr. Roden, of Droitwich, had acute necrosis of the lower part of the right tibia, and, almost coincidently, of a piece of the left clavicle. Some months afterwards, she had necrosis of a small portion of the left humerus, with considerable suppuration around it; and several months later, a deep abscess, but not attended with necrosis, above the right knee. In another similar case, a young patient had, during four years, a succession of attacks of necrosis of different bones; all acute, none bearing any resemblance to strumous disease.

This election of a single tissue, and the observance of an uniform method of disease, in the secondary affections, are characteristic of chronic rather than of acute pyæmia. They are very marked in some of the cases that follow parturition, in which women suffer for many weeks with a succession of abscesses in the subcutaneous connective tissue of the limbs, and usually (after long suffering) recover completely. Such cases are also sometimes seen in men.

Among the least severe cases of pyæmia that I have seen,—contrasting with the acute cases as strongly in respect of gravity as the last related do in respect of time,—have been some of those associated with disease of the urinary organs or with catheterism.

IV. *Urethral stricture—Retention—Catheterism—Rigors—Pyæmial abscesses—Tumour-like formation about the femur—Liquor potassæ—Recovery.*

A sallow unhealthy-looking man, 40 years old, was admitted into St. Bartholomew's on January 27th, 1863, with old strictures, and recent retention of urine. The usual treatment was pursued, with the warm bath and opium, and afterwards with catheterism. He was completely relieved, and taught the use of the catheter; and was discharged, apparently in his usual health, on February 10th. Just before he left the hospital, a No. 8 catheter was passed easily.

On the night of February 11th, about thirty-six hours after his discharge, without any reason that he could assign, he had violent rigors and great pain, like that of rheumatism, in his right shoulder. On the 12th he had some hæmorrhage from the urethra, and about the same time noticed a painless swelling on the right of the upper half of the sternum, and soon after another swelling under the urethra, just in front of the scrotum. With these, and complaining of dyspnœa and pain in the chest, he was again admitted into the Hospital on February 14. Soon after his admission, a third swelling was found, seated over the left olecranon. All these swellings were or became abscesses: that over the sternum was open on the 14th; that by the urethra burst into the canal on the 18th, and that over the olecranon was opened on the 19th; and (to end their history), they all healed within the following month.

Two days after his admission, the patient's general condition was only such as might be found in any one with abscess from ordinary causes. He had been rather more ill on admission,

but, as it seemed, only from distress added to the irritation of the forming abscesses. After two days' rest, he had a cool, moist skin; his tongue was but little furred on the middle; his pulse 108, full, and soft; breathing 20; his bowels acted daily, he passed healthy urine freely, and, except that he slept little and was feeble, he could hardly have been thought ill.

Near the beginning of March, the patient observed a swelling on the outer and front part of his left thigh. This gradually increased, and at the middle of April covered at least three fifths of the front and outer part of femur, to which it felt as if immoveably fixed. The swelling was oval, smooth, not perfectly defined, firm, and apparently solid, or as if a solid infiltrated with fluid. The integuments and all the adjacent structures appeared healthy, and very little pain was produced by even rough handling. A small puncture let out a little bloody serum. The general condition of the swelling appeared to be that of a deep-seated inflammatory infiltration of all the tissues round the bone—but some thought it a firm tumour growing from the bone; the more readily because the patient's health seemed undisturbed. He went out daily, and was in every respect convalescent.

By the middle of April, the swelling had gained its greatest size, increasing the circumference of the limb by two inches. The patient was now ordered to take a drachm of liquor potassæ three times a day, and to make no change whatever in his manner of life, or any of the conditions in which he was placed. Very shortly the swelling began to decrease, and with no other evident change than that of diminishing size it gradually disappeared, and by the end of May was gone. Soon after, the patient left the hospital apparently well, and he showed himself a month later in the same condition.

V. *Lithotrity—Acute general disturbance—Abscess in the fore-arm, and threatened abscess in the thigh.*

A gentleman, 40 years old, invalid with the consequences of an empyema of many years' duration, had a calculus of lithic

acid, which was to be removed by lithotrity. The first crushing was on January 4th, and was followed by no general disturbance. The second, on January 10th, was followed on the next day by a greatly increased rapidity of pulse,—it rose from near 90 to 140,—by rapid breathing, redness and dryness of the tongue, impaired appetite and digestion, frequent vomiting, heat and wetness of the skin. These symptoms continued for five days, with little variation, and then gradually subsided. During and after their continuance, the urine contained more than usual mucus; but the irritability of the bladder was not increased. A third crushing was done on January 16th, and a fourth, the final one, on January 22nd.

While the patient was suffering with the severe constitutional disturbance above described, he began to complain of pain in the left fore-arm, and in the front and upper part of the left thigh. In the former there slowly appeared a widely-diffused œdematous swelling, tense and painful, which, with gradual concentration about the middle of the ulnar aspect of the fore-arm, ended in a large abscess in the deep subcutaneous tissue. This was opened on January 27th, and, after freely discharging thick pus, and several times apparently healing and then re-opening, finally closed on March 23rd. The pain in the thigh was succeeded by a swelling, similar to that in the fore-arm, but much larger, extending from the great trochanter over all the front of the hip-joint, and far inwards and downwards. At the end of January, it appeared to have already suppurated; but the calculus having been all evacuated, and the patient seeming to be only extremely feeble, I advised him to leave London for his home in fresh air. There, with returning strength, the abscess in the fore-arm healed; the swelling in the thigh slowly disappeared without discharge, and the patient regained and long retained his usual health.

Still less severe in its general symptoms than either of these two, was the following case:—

VI. A young man was under my care in the Hospital in March and April 1862. He was admitted with spontaneous



moderately acute inflammation of the right inguinal glands. A small puncture was made into the centre of the swelling; but it contained no pus. A few days later, acute œdematous inflammation of the scrotum set-in; while it was subsiding without suppuration, the internal saphena and some other veins of the left leg became nodular, hard and tender, with pains and heat, as in ordinary adhesive phlebitis; and, in a day or two, a similar affection appeared in the veins of the right leg. When these had nearly recovered, pains and swelling, much like those of acute rheumatism, ensued in one hand and elbow, and, after a few days, in the opposite wrist. After an interval of rather more than a week, and when the patient seemed nearly completely well, a swelling appeared by the anterior spine of the right ilium, not far from the glands that had been inflamed. This suppurated, and discharged the only pus formed in the case. While it was discharging, the right spermatic cord became painful and hard. Then knotted hardness, pain, and tenderness ensued, in succession, in some of the subcutaneous veins of the left fore-arm, left upper-arm, and right fore-arm.

With these the case ended, and, after two months' illness, the man regained his usual health and strength. During the whole time he had no more or other general disturbance of his health than is usual in each of the inflammatory diseases from which, in unusual succession, he suffered. In the intervals between them he was weak, but not ill.

If it should seem to some that cases so comparatively trivial as these cannot properly be called by the same name as those from which the ordinary description of pyæmia is drawn,<sup>1</sup> I would observe that the difference between the two groups of cases is only one of degree; and that a complete series of cases might be collected ranging from the most to the least severe, and all resembling one another more than any of them resemble

<sup>1</sup> See discussion on Mr. Hewett's paper.—'Clin. Soc. Trans.' vol. vii., pp. lxviii., lxxi.

the cases of any other disease. The differences between the cases of acute and of chronic pyæmia are not greater than those between cases of acute and chronic tuberculosis. Sameness of designation is, in both cases alike, justified by the rule that differences in degree do not constitute or prove difference in kind.

The conclusions which the cases just related go to prove may be thus summed-up:—

It is not rare to meet with examples of disease presenting the essential characters of pyæmia, but much slower in progress, and much less severe and perilous, than those from which pyæmia is usually described.

These cases are frequent enough to justify the general use of the names ‘chronic’ or ‘relapsing’ pyæmia.

They are more rare among the instances of pyæmia following wounds than among those occurring in diseases.

The local evidences of chronic are, more often than those of acute, pyæmia, seated exclusively or chiefly in different parts of the same tissues; they are more frequent in the trunk and limbs than in internal organs,<sup>1</sup> and when seated in the veins are most frequently found towards the close of the disease.<sup>2</sup>

<sup>1</sup> Several instances in which pyæmia was chronic are related by Mr. Prescott Hewett in his address on pyæmia, published in the ‘Clin. Soc. Trans.’ vol. vii. 1874. In many of these the abscesses which formed were confined to the limbs and the superficial parts of the trunk; and the lungs and other internal organs escaped.

<sup>2</sup> Chronic pyæmia, indicated by a succession of large, flaccid, often painless abscesses in the joints, or the subcutaneous or intermuscular tissue, or beneath the periosteum of the long bones, accompanied by wasting, sallow skin and wide variations of temperature, is occasionally seen in infancy and childhood. It occurs as a sequela of scarlet fever, or some of the other exanthemata. In some of the instances that have been observed no distinct cause could be assigned.—[Ed.]

The nearest affinities of chronic pyæmia are with rheumatism, through gonorrhœal or urethral rheumatism;<sup>1</sup> with simple or single abscess-formation after fever; with hectic fever; yet, with very rare exceptions, the diagnosis from all these is, in practice, clear.

The prognosis in chronic pyæmia may, usually, be very favourable; especially when there are long intervals between the successive local manifestations of disease, and no evidence of serious pulmonary affection. The slower the pulse and breathing, and the less the sweating, the greater are, in general, the probabilities of recovery.

The usual treatment of chronic pyæmia may be with good food, patient nursing, a moderate use of stimulants and tonics, and an abundance of fresh air. The value of this last condition was strikingly shown in Case V. The influence of the liquor potassæ in Case IV. deserves consideration. Its curative power seemed clearly proved; and I suspect that a part of its reputation for causing the absorption of tumours is due to its influence on morbid deposits imitating tumours, such as existed in that case. p. 167

<sup>1</sup> Mr. Barwell in his work on 'Diseases of the Joints,' p. 101, maintains a similar opinion.—[Ed.]

## *NERVOUS MIMICRY.*

---

### LECTURE I.

A GROUP of cases of great practical importance is distinguished by this fact : that a nervous disorder produces an imitation or mimicry of organic local disease. In some of these cases the mimicry occurs without any substantial disease whatever ; in others it gives features of extreme severity to a disease which, in a normal condition of the nervous system, would be trivial or unfelt.

Much has been written on this subject—much that is good ; but, if I may judge from the difficulties still often found in discriminating between the real and the mimic in diseases, there is need of writing more.

Cases of this kind are commonly included under the name *Hysteria* ; but in many of them none of the distinctive signs of hysteria are ever observed, and from all of them it is desirable that this name should be abolished. For it is absurdly derived, and, being often used as a term of reproach, is worse than absurd. To call a patient hysterical is taken by many people as meaning that she is silly, or shamming, or could get well if she pleased ; and no doubt there are patients of whom some of these things may be fairly said ; but in many more,

hysteria, especially in the form of an unwilling imitation of organic disease, is a serious affection, making life useless and unhappy and not rarely shortening it.

At any rate, let us, if we can, discard the name of hysteria from surgery. If it is to be retained at all, it may be for the cases of patients with hysterical convulsions and sense of suffocation, with the abdominal flatulence, the nervous urinary secretion, and those other associated signs of nervous disorder which are not imitations of other diseases, and are not themselves imitated. These are characteristic enough to deserve a distinct name, and hysteria will serve, at least as well as hypochondriasis and melancholy do for what they signify. But the characters of nervous mimicry are also distinct enough to make a separate group with another name. In English we may speak of nervous mimicry; in untranslated Greek, of *neuromimesis*. To patients and their friends the maladies may be said to be due to extreme nervous sensibility; or, if they also prefer Greek, we may call them *hyperæsthetic* or *hyperneurotic*;—anything but hysterical.

The chief practical interest of these cases is in the diagnosis between them and the organic diseases imitated in them; and as it is only in clinical study, and on clinical grounds, that they can be grouped, so I shall keep to a clinical view of them, and shall speak of their pathology only as subservient to their diagnosis. I am the more content to do this because, in Dr. Russell Reynolds's essay on Hysteria in his '*System of Medicine*,' and in Dr. Anstie's lectures on it in '*The Lancet*,' you may easily find the whole subject recently and

accurately taught. Indeed, if it were not that I may treat the surgical part of the subject more fully than they, I should not have seen room or occasion to lecture on it at all.

Now, there is scarcely a local organic disease of invisible structures which may not be mimicked by nervous disorder. You hear of hysteric cough and hysteric aphonia, of hysteric dyspepsia and paralysis, of hysteric joints and spines; and there is scarcely any of these disorders in which the mimicry of real diseases is not, sometimes, so close as to make the diagnosis very difficult.

The means for diagnosis are to be sought—(1) in what may be regarded as the predisposition—the general condition of the nervous system on which, as on a predisposing constitution, the nervous mimicry of disease is founded; (2) in the events by which, as by exciting causes, the mimicry may be evoked or localised; (3) in the local symptoms of each case. And I shall speak of these things in this order; though it is the wrong order for the actual study of a case. In every clinical study, the examination of the present disease should precede that of its probable causes; though for lectures and reading the reverse order is usually the better.

First, then, as to the general condition of the nervous system which disposes to mimicry of local disease. In all well-marked instances there is some prominence and apparent excess of nervous action, leading to the general expression of the patient's being nervous or of nervous constitution. Neuromimesis cannot be found in all persons alike, or in any person at all times. It may be

regarded as a localised manifestation of a certain constitution ; localised, that is, in the same meaning as we have when we speak of the local manifestation of gout or of syphilis, or of any other morbid constitution which we regard as something general or diffused, though distinct witness of it may be in only one or more parts. And the nervous constitution, like others, is inherited in different degrees of completeness or intensity ; and may, like others, become less or more complete or intense according to the conditions in which it has to live.

As to what is, verily, the peculiarity of the nervous constitution, I believe we have nothing fit to be called knowledge. It is even hard to give fit names to what we may suppose it to be. We may speak of the nervous centres as being too alert, or too highly charged with nerve-force ; too swift in mutual influence ; or too delicately adjusted, or defectively balanced. But expressions such as these, or others that I see used, may be misleading. It is better for us to study the nervous constitution in clinical facts ; and the life of almost any patient with very marked nervous mimicry will supply materials for the study. I have, indeed, seen a few in whom I could find no other nervous error than the present mimicry of some disease. But in the great majority there is either history or present evidence of a characteristic nervous constitution, such as may serve towards diagnosis. Some have been, or are even now, truly hysterical : subject to fits of irrepressible laughing, crying, or sobbing, or to convulsions of various hysteric kinds. But you will find nervous mimicry in very many who have never been hysterical. In some the sensibility

is always too keen, whether for pain or pleasure. In these the pain of an injury is much more severe than what we may suppose to be the proper average of pain producible by such an injury : it lasts longer ; outliving all the other consequences of the injury. And, as to pleasure, as a patient said to me, who suffered what she called tortures from ordinary sources of moderate pain, ‘the pleasure of music is an agony.’ But not all have this compensation of feeling pleasure as keen as pain : for many are habitually neuralgic ; they suffer with headaches, dartings in limbs, still more often with spine-aches and the like, and are, as one may say, very painful persons,—altogether hyperneurotic in their relations to pain, but not to pleasure. In some of these patients, again, the mutual influences of the mind and body are too active. If they have ever fainted or vomited, for instance, the recollection of the circumstances in which they did so makes them faint or sick again. In some, all impressions are too widely and vehemently reflected ; the irritant that healthy people bear unobserved produces convulsions, or some other seeming serious disturbance. An intestinal worm, for instance, which some patients would not feel, may in these produce the signs of all manner of diseases. And some have already had mimics of various other organic diseases, and will tell of all the sensation-signs of these diseases, without having a single mark of any organic change produced by them.

One of the most frequent conditions in those in whom the nervous mimics occur is a singular readiness to be painfully fatigued by slight exertion. This is most marked in those with spinal neuromimesis, but may be



found in many more ; and in some is the most marked sign of the erroneous state of the nervous system. To most of us the sense of fatigue produced by even excessive exercise is scarcely distressing : only a great excess, tending to exhaustion, would be felt as really painful ; and the worst is soon relieved by rest. But these nervous patients become utterly fatigued in even slight exercise, and their limbs and their backs, though they may look muscular and strong, ache horribly and very long ; so that, not rarely, the attempt at more than usual exercise is followed by great suffering, by sleepless nights, and sometimes by nausea and vomiting. Their sensations are like those of the painful fatigue which convalescents from acute disease feel after doing too much ; but I believe there is never attendant fever such as convalescents in that case usually have : the likeness is only in sensation.

Some or all of these, and of other forms of defect, or error, or turbulence—call it what you will—of the nervous system, you will nearly always find or hear-of in patients with nervous mimics ; and in any study of a case these conditions or their absence may add to the grounds for diagnosis. But it is, I think, a fact of singular interest that, in even the most turbulent of these nervous systems, the disturbance very rarely takes the form in which morbid nervous influence produces, not mimic, but real organic changes. Of the things imitated hardly one is ever realised. I have not yet seen in any hysterical or neuromimetic patient an instance of herpes zona ; not even in those who have suffered long with that infra-mammary pain which is not far unlike the neuralgia

commonly preceding the eruption. I have not seen an instance of rheumatoid stiffening of joints, like that which sometimes ensues in disease of the spinal marrow, even in the most tedious of neurotic joints; nor one of the glossy fingers, or the eczema, or the centripetal wastings, or, in short, any of the organic diseases of peripheral parts which are associated with injuries or organic diseases of nerves or nervous centres. Neither are these patients particularly liable to any forms of fever or of blood-poisoning; they incur as little risk from operations as any class of healthy persons. The fact—I think it is one—is important in both diagnosis and pathology; and it is not falsified, I believe, in any but a few ambiguous cases in which what seems a mimicry of disease of the spinal marrow passes into real disease, and leads to extreme wasting of the lower limbs and arrest of the growth of nails. The contrast is the more notable when we consider that the distribution of blood is, in many of the mimic cases, greatly affected. Heat and cold of the same part, rapidly succeeding one another, flushing and pallor, turgidity and collapse,—all these are frequent, striking, and capricious in the nervous mimicries; but, after months and years of their occurrence, not one organic change may be discerned. You may find in our Hospital Reports<sup>1</sup> the case of a gentleman who consulted me because, for several years, whenever he walked far or fast, his feet became cold, white, and numb—‘dead,’ as they are called; and then, when he rested, they flushed red and hot and were turgid with blood, distending even the veins of the

<sup>1</sup> Vol. viii. p. 67.

leg. Yet, after years of such disturbance, his feet were as healthy as any of yours.

But now, to add again to the grounds of diagnosis: it is seldom that patients with well-marked nervous mimicries have ordinary minds—such minds as we may think average, level, and evenly balanced. You may, indeed, find among them some common-place people, with dull, low-level minds; but, in the majority, there is something notable, good or bad, higher or lower, than the average—something outstanding or sunken. This something is, in different cases, so various that it is impossible to classify or even to enumerate the diversities. But be clear that these patients are not all silly, or fraudulent. Nothing can be more mischievous than a belief that mimicry of organic disease is to be found only or chiefly in the silly, selfish girls among whom it is commonly supposed that hysteria is rife or an almost natural state. It would be safer for you to believe that you are likely to meet with it among the very good, the very wise, and the most accomplished among women. But it will be safest if you believe only that, in any case of doubt whether a local disease be organic or nervous, it adds something to the probability of its being nervous if the patient has a very unusual mental character, especially if it be unusual in the predominance of its emotional part; so that under emotion, or with distracted attention, many things can be done or borne which, in the quieter mental state, are felt as if impossible or intolerable. And this probability of mimic rather than real disease will be much increased if the patient's mind be set, in much more than the ordinary degree, upon the real or supposed disease. In all the

well marked cases of nervous mimicry, and in the less marked in only a less degree, the malady determines the general current of thought, and often of the whole life. Egotism has its keenest life at and about the supposed seat of disease. If the malady be not always uppermost in the thoughts, it seems always in an under-current, rising at every interval between the distractions of work or play.

The contrast of the mental states of those who have real and those who have imitated local diseases is often very striking and of great help in diagnosis. Few patients with real hip-disease or real spinal disease, for instance, think half so much about their ailments as they do whose nervous systems imitate those diseases. In this egotism they resemble hypochondriacs: yet commonly with a great mental difference, in that those with neuromimesis are not distressed with constant forebodings of greater mischief; they do not suspect that everything they feel is a token of something much worse than can be felt; rather, they are content and often almost happy in their afflictions. While the hypochondriacs are in a panic on account of some trivial aching, the neuromimetics will talk of their agonies with calm or smiling faces, or with half-closed quivering eyelids; sometimes, even, they seem well pleased or proud in the immensity of their ailments.

This egotism in relation to the imitated diseases gives to many patients an appearance of great wilfulness. Some, indeed, are very strong-willed; some are so for all the good designs in which they engage, and some with a thorough, almost diagnostic self-service. But strong will is, I think, less common among these patients than is a

want of will. Sometimes there is a general feebleness of will : the patients can do nothing for themselves ; can trust themselves in nothing ; but commit themselves to some one with a stronger will and an appearance, if not a reality, of more knowledge. Hence, among these patients are the most numerous subjects of mesmerism, spiritualism, and the other supposed forces of which the chief evidence is the power of a strong will over a weak one. But more often you will find a feebleness or complete negation of will in reference to the supposed seat of disease, while towards other things the will is strong enough. You may find the strangest inconsistencies in this respect. A man who has intellect and will enough to manage a great business, or to travel with much inconvenience and write clever books, cannot will to endure sitting upright for ten minutes, or cannot distract his attention enough to be indifferent to an unmeaning ache in his back. A girl who has will enough in other things to rule the house has yet not will enough in regard to her limbs to walk a step with them, though they are as muscular as ever in her life. She says, as all such patients do, 'I cannot'; it looks like 'I will not'; but it is 'I cannot will.'

I think it is to this same weakness of will that we may attribute other things often observed in the worst cases of neuromimesis, especially the disposition of the patients to imitate or assume symptoms of disease that they have seen or heard of, such as the deformities of diseased joints, the lameness or paralysis associated with spine-disease, and the supposed distinctive pains of cancer. No doubt there is sometimes intentional fraud and lying in these cases ; but in many more I think you may be sure that patients

do not study the imitation or deliberately determine to practise it. Rather they are, in respect of will, like children, who almost involuntarily imitate diseases ; for instance in stammering, limping, and so on. I think that many persons, even such as have good nervous systems, must be conscious that it requires effort—that is, a full exercise of will—to avoid these imitations, and to disbelieve or disregard sensations imitative of those endured by others. And in the frauds which some of these patients practise I am nearly sure that the fault is rather in weakness of the will than in its perverse strength. As other people cannot resist thieving or drinking, so these cannot resist, have not will enough to resist, the inducement to fraudulently exaggerate their symptoms, or even to invent some. It is often very hard to distinguish between the frauds of the wilful and those of the will-less ; but I have seen no reason to believe that wilful fraud in disease is much more common among those with nervous mimicry or hysteria than it is among others.

If you study nervous mimicry in all the varieties of mental strangeness that may be associated with it, it may often seem to you an entirely mental disorder, due only to imagination, or to intense attention directed on one place, or to adoption of signs heard of, or, in many cases, to an insanity of the intellect ; and it is not easy to find sufficient evidence that it is not so. Imagination, fear, and keen attention, association, and the tendency to imitate distresses seen or heard of, might produce all the morbid sensations of which patients tell, and might give form and intensity to pains from any casual source of real disease ; and as for the postures observed, for instance, in

mimicries of diseased joints or spines, these, it may be said, are only such as are assumed instinctively for the relief of pain ; and in an intensely sensitive person, with no substantial reason for more than a slight pain, it is probable that the subjective intensity of pain would bring about the same postures of relief. Similarly, flushings and transient heats might be all of mental origin, as blushing is. If you study these mimicries from the mental side, you may, I say, easily find reasons for thinking them mere mental errors—insanities—rather than erroneous workings of sensitive and motor nerve-centres ; and you will be almost convinced of this view of the case if you will read of the multiform and profound influences of the mind over the body in Dr. Tuke's recent book<sup>1</sup> on this subject, or in any similar work. But I think I may assure you, that to regard all mimicries of organic diseases as essentially mental errors would be bad pathology and worse practice. Let me put the case before you very briefly, for I am lecturing on diagnosis, not on pathology.

Some mimicries are essentially mental ; such, for instance, as those in which patients, out of mere fear and keen attention, acquire the pains of cancer, and localise them in healthy parts ; and in nearly all mimicries a mental influence may be discerned, just as it may in nearly all real diseases in which consciousness remains—an influence often impossible to separate or weigh, generally increasing with the duration of the disease, yet not essential to it whether it be real or mimic. But in some mimicries it is hard to discern any mental influence

<sup>1</sup> Tuke, 'Influence of the Mind upon the Body,' 1872.

at all. Some are imitations of diseases very far from mental associations—in the cases, for example, of intestinal distension, constipation of many days' duration, constant vomiting and aepsia, rapid heart-action with slow breathing, largely pulsating arteries, and phantom-tumours. Some are found in common-place, ignorant, and slow-minded people who never saw or heard of the diseases imitated in them. Some occur in children who could neither imagine nor act what they tell and show, though as they grow-up they may become those in whose successive mimeries the mental influence takes a constantly increasing part. And, to end, whatever may be ascribed to mental influence, it can produce mimicry of organic disease in only certain persons whose nervous organs seem wholly prone to this manner of disorder, and whose spinal and ganglionic systems must be deemed erroneous, as well as, or more than, their brains. For nervous mimicry is not very frequent among the evidently insane, and among the sane there are many who cannot bring-about a mimicry of disease by any effort of imagination or direction of the mind. Among these I am happy to count myself. I have tried many times, carefully, and with good opportunities, but have always failed.



## LECTURE II.

IN the last lecture I spoke generally of the characters of the nervous constitution commonly observed in those who suffer with the mimicries of organic diseases. You may believe that, however much the circumstances of a life may favour the development of such a constitution, it would not be well marked unless it were inherited. And facts relating to inheritance deserve great weight in the diagnosis of any doubtful case of nervous mimicry.

In looking for indications of this inheritance you may not find that, in the same family, there are or have been many cases of similar mimicry of disease ; but it is a fact of not less weight if, in the same family, various other forms of nervous disorders—especially of such as are, for convenience, called functional disorders—have been observed. Thus, among the relatives of those with neuromimesis it is common to find cases of mental insanity, extreme ‘nervousness’ and eccentricity, stuttering, convulsive and emotional hysteria, various neuralgiæ, extremes of mental character whether good or bad, and sometimes (but I think less frequently) epilepsy and paraplegia. These evidences of family-relations may help in diagnosis, just as, in the diagnosis of a doubtful tuberculous disease, it is important if, among the members of the patient’s family, there have been many more than an ordinary number of cases of pulmonary tuberculosis, of tuberculous lymph-glands, of lupus, or of perforating

ulcers of the nasal septum or soft palate. So, in the diagnosis of a doubtful case of gouty disease, it is important if relatives have had either typical gout, or many of the less marked forms of gouty affections of the skin, or kidneys, or any other part. It is a general fact, that if any constitutional disease is prevalent among many members of the same family, it affects them variously, in different degrees of intensity, and in different parts and textures; but by this diversity the total value of the evidence of inheritance, as bearing on a doubtful case, is not diminished.

The family-relationship between the nervous mimics and mental insanity is specially worth considering. It helped us to the diagnosis, as some of you may remember, in the cases of two girls who were at the same time in Sitwell ward: one with strongly marked mimic disease of the hip; the other with very slightly marked real disease. The mother of the former was in a lunatic asylum; the mother of the latter died tuberculous.

I believe that a large majority of the worse cases of nervous mimicry occur in members of families in which mental insanity has been frequent. And the fact is important, not only for diagnosis, but for pathology. It may serve to strengthen the view that nervous mimicry is a mental disorder; but I believe it may be more rightly read as an indication that, whatever mental insanity may be as a disorder of some portion of the brain, the like is nervous mimicry as a disorder of other nervous centres. Surely, any nervous centre may 'go mad' as well as any part of the brain which is appropriate to any part of the mind; and may be mad in

different ways, imitating the idiotic, the emotional, the maniacal, or other forms of insanity. But I only suggest this for your study, and by the way. Let us see for other grounds of diagnosis.

Nervous mimicry is much more frequent in females than in males ; more frequent from the beginning of puberty to middle age than in either earlier or later life ; more frequent in the more cultivated than in the rougher classes of society. But in what proportions it occurs in each of these several groups it seems impossible to tell with any fair approach to accuracy ; for no one has a field of observation so general, or so equally inclusive of all these groups of persons, as to be able to count fairly among them. I should disbelieve any statistics pretending to settle the proportions accurately. You may be sure that neuromimesis is most frequent in young women of the more cultivated classes ; but you may be equally sure that it is not so rare among men, or children, or at any age, or in any social condition, as to make it unreasonable to suspect it in any case of obscure disease. You had better not let any such case pass without asking yourself, Is this disease, or any part of it, mimicry ? Some of the worst cases of mimicry of disease of the spine and pelvis that I have seen have been in men and women of mature age ; some of the worst of joints in young children ; some of the worst of all kinds in poor people.

It is equally or more difficult to find any general characters of health, except those of the nervous system, which may help to the diagnosis of mimicry from real disease. Some of the patients are in various degrees gouty ; some are tuberculous ; some scrofulous. The

nervous constitution may be mingled in various proportions with any others, adding its own characters to theirs, making pain more intense, spasm more severe and frequent, or receiving from other constitutions characters of organic disease very difficult to eliminate.

These various combinations of constitutions must be well studied. The most troublesome is the combination of the nervous with the gouty constitution. For in one in whom gout is not complete there are never wanting strange sensations—of tinglings, burnings, pains, pressures. In the neuromimete these become intense; his nervous system defines them or gives them form; and the difficulty of diagnosis becomes extreme. And as the combination with gout is the most troublesome, so that with tuberculosis is the most dangerous. It is through this that many die whose maladies have been made light of, and called, with a sneer, hysterical, or only nervous, or the like. They die, and often die young, not through their nervous malady, or anything directly affected by it, but through tuberculosis or some allied disease which they have inherited, and which their invalid habits have made it impossible to avert. Of the nervous constitution itself very few if any die; some remain miserable invalids all through life, till some casual disease, aggravated by their general feebleness, removes them: but the majority get well; they live through the time of life in which the constitution is most marked, and then their nervous systems become more tranquil, balanced, and orderly.

I think there is no constitution in which nervous mimicry is so commonly found as in patients who are said, and perhaps truly, to have a very bad circulation.

Chiefly, these are marked by being habitually cold-footed. In nearly all weathers and all times their feet feel no warmer than the air ; indeed, they feel colder, and are often damp and, in those who are not anæmic, are purple about the sides of the toes and under the nails. Sometimes the hands are habitually in the same condition, and the skin on the back of the upper arm is usually dusky, pink and purple, coarse and papillary.

Doubtless this coldness tells of very slow movement of blood in the skin of the cold parts ; and, in seeming agreement with this, the heart is commonly feeble, irritable, and swiftly acting, so that the pulse is very quick, while the breathing is comparatively slow. Often, the inconsistency of a quick pulse with only natural or slow breathing and a low temperature may nearly suffice to tell that some very painful disease of long standing is only ‘ nervous.’

But, besides, this habitual or very frequent coldness of the feet probably indicates a contraction of the small blood-vessels dependent on disorder of nervous supply. For the phenomena are very variable. Some patients have such feet as, they say, cannot be warmed : they are cold all night, cold while long wrapped in warm flannel ; and even when warmer they may become cold under mental influence. But in some the feet, after being cold all day, flush in the evening ; in others they become red and even painfully hot, puzzling the student of diagnosis.

Such variations in the state of bloodvessels in any part seem to tell of nervous disorder overrunning from the cerebro-spinal into the vaso-motor nervous system. They are weighty evidences in favour of nervous mimicry

in any doubtful case; and they become more so when, however often and extremely widely the supply of blood may have varied, the nutrition of the part remains unaffected.

The temperature of a patient in whom you are doubting between real and mimic disease should always be observed. Speaking generally, it is not affected in any degree proportionate to the signs which may seem like those of acute disease. With a joint or a spine as painful as in the most acute inflammation, there is usually a constantly natural temperature; and so of other nervous disorders imitating inflammations in other parts. And this inconsistency may settle your doubts. But if the temperature be variable, or often high, you must be cautious. You may rely much on heats and chills, on shiverings and sweatings, as signs of true disease in parts, and as very probably signs of suppuration; yet they are not quite sure. Many sensitive persons shiver on very slight provocation; for instance, when they are in pain or anxious, or what they call bilious, or exhausted. In hysterical persons, a shivering may take the place of an ordinary hysteric fit. Weakly persons, by whatever weakened, sometimes perspire very freely at night; and mere nervous excitement may raise the temperature to at least  $101^{\circ}$ . I have seen a case in which, for nearly a month during convalescence after fever, the temperature rose two or three degrees every night; the patient had some signs of joint-disease, but the end of the case showed that there was no real morbid process present. And it may often be observed that, though with little or no organic disease, a nervous patient's temperature

may be normal, or not above  $101^{\circ}$ , yet with a moderate addition of acute disease the temperature may rise much higher than it would in anyone with a healthy nervous system. I perforated an abscess in a very hysterical young lady's tibia; a few days afterwards the escape of pus was casually hindered, and in that evening her temperature rose to  $105^{\circ}$ . In the next evening it was  $104.1^{\circ}$ . In the following morning it was  $100.5^{\circ}$ ; in the evening  $101.5^{\circ}$ ; and then it fell nearly to normal. And this had happened without any material pain or inflammation; and, even when the temperature was  $105^{\circ}$ , she was cheerful, and with a pulse about 100. Her respiration was natural.

These facts may be enough for caution against over-reliance on any one sign of disease in patients of nervous constitution, even though it be the measurable temperature. Prudently estimated, it is of the highest value, even in nervous patients; over-estimated, it is more fallacious in them than in any others.

In all nervous constitutions, especially in those with the habitual coldness of the hands and feet of which I was just speaking, it is common for many of the internal functions to be torpidly and scantily performed. The bowels are often inactive, sometimes marvellously slow, the gastric digestion is feeble, and menstruation is scanty and irregular, or altogether suspended; but in these things there is no rule: in some nervous mimics the functions of organic life are done well enough.

In the defective ovarian and uterine functions of certain patients some see the centre and chief substance of the whole disease: a very mischievous fallacy. Of

course the sexual organs appear generally in fault to those who are rarely consulted for the diseases of any other part ; but in general practice they are, in a large majority of cases, as healthy as any other parts are, or not more disturbed. The close and multiform relations of the sexual organs with the mind, and with all parts of the nervous system, are enough to make the disorders of these organs dominant in a disorderly nervous constitution ; but their relation to 'hysteria' or to 'neuro-mimesis,' though more intense, is only the same in kind as that of an injured joint or an irritable stomach. All, in their degrees, may be disturbers of a too perturbable nervous system ; and equally on any one of them the turbulence of a nervous centre may be directed with undivided force.

In patients with very strongly marked nervous constitution, a mimicry of organic disease may ensue as if spontaneously—without provocation. And the chances of such an event are greatly increased in the weakness of convalescence after acute disease, a condition in which whatever is wrong in any constitution has the best opportunity of appearing in force. But much more generally the mimicry begins after some event which has the relation of an exciting cause, determining in many instances not only the occurrence of the mimicry but its locality.

These exciting causes may, then, be our next subject ; and these also may be studied chiefly with a view to diagnosis.

Among the chief are sudden mental distresses, emotion, disappointment, long anxieties, or exhaustion by



overwork. When any of these can fairly be traced as inducing a seeming organic disease, the probability of a neuromimesis is increased. Sometimes the effect of mental strain is very striking. I saw one day a young gentleman who had been overworking for a civil service-examination. After a three hours' mathematical cram he fainted, and when he rallied had a very close mimicry of paraplegia, which lasted many weeks. On the same day I saw a gentleman who had been greatly overworked in a prosperous business. He kicked his great toe severely, and had a mimicry of tetanic convulsions in the limb, with night-panics and other curious nervous symptoms, which after a few days were followed by the sensations of spinal disease such as one of his brothers died with. This patient was supposed to be strong, but was really very nervous, timid, and watchful. The other was generally calm, active, and vigorous; but one of his sisters had had severe hysteria and apepsia.

In cases such as these the mental disturbance appears as an exciting cause; in others of longer duration, as with constant anxious watching or any feelings long suppressed, if the mental states may not be regarded as exciting causes, they so greatly enhance the tendency to nervous mimicry that its outbreak may seem spontaneous.

In another form, a mental condition may be regarded as the determining or exciting cause—namely, when a patient imitates unwittingly and unconsciously another person's disease. In a case which I do not doubt was a neuromimesis of hip-joint-disease, with limping, and with eversion and contraction and some pain of the thigh, I

found that the patient's brother had advanced true hip-disease—a fact which rather added to the difficulty of diagnosis, for with the probability of similarity of constitution in two brothers it might be deemed very probable that both would have the same organic disease.

Similarly, through sympathy, even without family relationship, one person may acquire the sensations of disease described by another. In the fortnight following the death of the late Emperor Napoleon, I was consulted by four persons who described, as they felt, the sensations of stone in the bladder. One had some slight disease in the bladder; the others were healthy men, except in that they had nervous irritable bladders; but there was not any ground for a suspicion of stone in any of them, and none of them had suspected it, or felt the sensations that led them to the suspicion of it, till they were excited to attention and suggestion of these sensations by the constant thinking and hearing of what were supposed to be the sensations of the Emperor.

More frequent probably than any mental state, among the exciting causes of nervous mimicry, is injury of any kind, especially of bones and joints. In the majority of the cases of mimicry in these parts, and in the spine, injury is told of as the cause of disease. The history thus adds to the difficulty of diagnosis; for injury is as often the cause of real disease—and after injury, let me tell you, nervous mimicry is not only more difficult to be sure of, but harder to cure. For there is something tangible to appeal to, something which would indeed be quite inadequate to explain any severe symptoms in a person of sound nervous system, but which the mind and mimicry

can invest with symptoms enough for even the gravest disease.

In many cases you will find it very hard to tell what has determined the locality of a mimic disease. If it be not injury, it may be some inherited local disposition to disease, or a special local excitability ; but when we cannot even guess, there may yet be no ground for doubting that the malady is mimetic, for we are in only the same difficulty as we often are in trying to say why, e.g., gout is in some persons localised in the hand, in some in the foot, in some in the skin, or stomach, or bladder. In all alike the constitutional malady may be clear, however obscure may be the conditions determining its local evidence.

I say the constitutional malady ; and let me again and again repeat, that in every case of this kind you are to look, for the essence of the disease, to the general condition of the nervous system. There is no greater fallacy than to suppose that nervous mimicry, or hysteria, or any of the allied forms of disease, can be referred to any malady of any other part than the nervous system. There is not an injury or a disease of the ovaries, or prostate, or any other part, to which hysteria, hypochondriasis, or any allied malady has been referred, which may not be found, in some persons, free from all nervous complications whatever. It is only the hysterical by natural constitution who can be made to display hysteria by any local disease or injury—only those who are by constitution predisposed to nervous mimicry in whom such mimicry can appear.

## LECTURE III.

## ON NERVOUS MIMICRY (NEUROMIMESIS) OF DISEASES OF JOINTS.

I HAVE said all that I think necessary, for help in diagnosis, on the general conditions of patients in whom mimicry of disease occurs, and on the events which appear as exciting causes of the mimicry. I will now speak of some of the special mimics, beginning with those of diseases of the joints, and still trying to teach, almost exclusively, their diagnosis.

Let me repeat the rule that, in every case, you should study the local before the general symptoms. You will often go wrong if you take the contrary course. In the most evidently hysterical patient there may be a real joint-disease; in the least evidently there may be a mimicry: and the error of treating a real disease as 'only nervous' is one of the worst that can be made; it may be as bad as that of amputating a limb for a mere mimicry of disease.

Among the diseases of joints, those which are most often imitated are the more or less acute inflammations; not, unless very rarely, the rheumatic or gouty or any of that class, but the so-called common inflammations and the scrofulous. If you would think of the importance of studying them, remember that Sir Benjamin Brodie, to whom more than to any one else of any time we are in-

debted for knowledge in these subjects, said that, 'among the higher classes of society, at least four-fifths of the female patients who are commonly supposed to labour under diseases of the joints labour under hysteria, and nothing else.' This statement, of course, does not refer to the class of gouty and rheumatic diseases of the joints; and it needs, I believe, an amendment by the omission of the words 'and nothing else,' for part of the large proportion is made up by numerous cases of trivial disease or injury made to seem severe by hysteria or other nervous fault. The words 'higher classes,' also, need strong emphasis: for among my hospital-patients, whether in or out-patients, I think I can be sure that the proportion of nervous joints was less than one-fifth; and even in private practice the proportion of four-fifths is not attained unless in practice almost exclusively among the most cultivated classes.

Among all the joints, the hip and the knee, which are the most frequent seats of real disease, are equally so of the mimicry: a fact not easy to account for. It may be due to mental association, perhaps unconsciously; or to a mingled inheritance—for instance, to an inheritance of nervous constitution and of relative weakness in the joint or joints most weak in progenitors. After the hip and knee follow, in order of frequency, the tarsal joints and carpal, or the elbow and shoulder; but in these, mimeries are too rare for counting.

Another fact, adding to the difficulty of diagnosis, is that the most frequent exciting causes are the same for the real and for the imitated affections of the joints. Injury, or some great fatigue, is commonly referred to as

the source of the mischief. The injury may seem inadequate for such trouble as followed; but you cannot rely on this. Many of the worst instances of scrofulous arthritis follow injuries that seemed very trivial. It may suggest a suspicion of neuromimesis if pain set-in with full severity directly after an injury that was not severe; but the suspicion must be lightly held. One of the most acute inflammations of the hip-joint I have seen set in severely, with an almost agonising pain, directly after a wrench of the joint in quickly turning round.

Thus, then, you can get little help for diagnosis from either the seat or the apparent cause of the malady: they are for the most part the same for the real and for the mimic affection. Your reliance must be on the examination of all the features of each case, and on a right estimate of the weight to be attached to each. Let me then take, in turn, each of the signs of inflammatory affections of joints, and see how far they may be imitated, whether separately or together. For although it may be said, generally, that an inflammation of a joint should be marked by many signs, and that in a well-marked case you may study them all, yet, in practice, you cannot treat lightly any case which has even one clear sign of diseased joint; for this may be only the first sign, which others will follow, or the last, which has survived the rest; or it may be one which is so exaggerated as to conceal the others. What is wanted in every case of suspected disease is, that you should be able to say positively Yes or No; and this you cannot do without knowing the weight in evidence of each usual sign.

First, as to pain. Alone, it is not to be at all relied

on for a sign of inflammation of a joint ; especially if it be severe. If a patient be ready to scream when the accused joint is touched, and yet the joint is not over-warm and the patient not feverish, you may be nearly sure of neuromimesis ; and more nearly still if the pain be rather in the parts outside or about the joint than in the joint itself, so that a gentle touch is said to hurt as much as a hard one, or a pinching of the skin as much as pressure on the joint itself. You must not even rely on what are supposed to be characteristic pains, such as those felt at the knee for disease of the hip, or about the middle of the arm for disease of the shoulder, or even those grinding and burning pains at night which some regard as characteristic of ulceration of cartilages : all these may be mimicked.

I had a boy aged about fifteen in the hospital who had these night-pains in a most marked degree in one knee, and the joint was a little swollen ; and he, being tuberculous, was wasting, hectic, and very ill. I did not doubt that he had destructive articular disease, and the use of the actual cautery cured his night-pain—another reason, some would have said, for being sure that his articular cartilages were ulcerating. Soon after this he had similar pains in or near the tibio-fibular joint, and these also were cured with the cautery. But he went-on and died with pulmonary tuberculosis, and I examined his knee-joint and found it almost healthy. A very small piece of one edge of the cartilage on the femur appeared eroded, but it was a trivial change, and quite inadequate to account for the severe pain of which the lad had long complained.

The case had been one of nerve-pain at the joint, and the imitation of organic disease had been made closer by the signs of the coincident disease of the lungs. But for this, it might have illustrated what you may take as a general rule—that acute pain in a joint, if it has existed for even a few days without either local or general increase of temperature, is not a sign of acute inflammation of the joint. It may be rheumatic disease or rheumatic gout, or some slight inflammation after injury, in a neuralgic person, but it is not acute inflammation.

There is more difficulty in judging of the meaning of pain in a joint when it is not severe, but dull, aching, ‘wearing,’ as patients describe it. You must be cautious in these cases. Pain alone is not enough to prove organic disease; yet the lower degrees of pain seldom exist constantly and long without some organic mischief. I have indeed known several such cases, especially of pain at the hip, the conclusions of which made me believe that the pain was only nervous; for the patients got at last suddenly or very quickly well, without stiffness or other apparent change at the joint, or with a shifting of pain to some other part. But in all such cases you must be cautious and watch for other signs of disease adding themselves to the pain, such as local heat, swelling at the joint, wasting of parts about it, and others that are least dependent on the sensitive nervous system.

The pain I have been speaking of is that which may be felt in the joint even while it is at rest. Different from this is the pain which prevents the free movement of the joint. It is observed alike in the real and the mimic disease; and you may often judge the pain to be



mimicry by its inconsistent severity. If with scarcely any other sign of disease a joint will not permit the slightest movement because of pain, you may greatly suspect the reality of disease ; but be very careful not to overlook the signs of increased pain on movement in cases of slight real disease, especially in the diseases of the hip in children. You may often find this the only sign making it clear that a child has real hip-disease. A suspected joint may allow free and smooth and painless movement till, for instance, in extreme abduction of the thighs one adductor becomes much tenser than the other, or in extension the loin is quickly raised, or, by some other movement, it becomes evident that the joint will not allow extreme movement without pain, although within all but its extreme range its movements may be free and painless.

In these, among many cases, chloroform or ether may help in diagnosis. In the real disease, as in the mimic, while the patient is utterly insensible, the joint may be moved as widely as in health, unless, indeed, there be such changes in its structure as might alone have proved its disease ; but commonly you will observe that, in the real disease, the muscles become alert, and restrain the movement of the joint before the patient has regained consciousness ; while in the mimic disease there is no restraint till consciousness is completely regained. The test is a delicate one, but I think I may be sure that it is a true one, and fit to be relied on, whenever the chief sign of disease of a joint is a restraint of movement on account of pain and the guarding action of muscles.

Closely allied with this pain on movement of an in-

flamed joint is its stiffness, with contraction or other set posture, dependent on muscular action ; for this posture, whether it be due to choice or to reflex movement, is the posture of greatest ease, or of safest guard against weight or shock or other causes of pain. The absence, therefore, of the fixed or nearly fixed posture usually observed in a diseased joint may always suggest the suspicion of mimicry. It would be rather strange to see a hip or knee extended after many weeks of such pain as would be felt in an acute arthritis, unless, indeed, they were rheumatic or gouty, with exaggerated pain, or had been carefully maintained in good position. It would require the presence of many other signs of real disease to counterbalance the absence of this sign ; for diseased joints, left to themselves, will be habitually or always in the position easiest to the patient.

But the reverse of this is not true. Very commonly a joint mimicking disease assumes the posture of disease—assumes and maintains it stiffly in even an extreme degree. This may be seen even when there is no objective pain in the joint ; but much more, when the joint is a little really painful. After a blow or strain the nervous condition of a patient may either make the pain so intense as to demand the position of greatest ease, or may bring-about this position for the relief of even a little pain. Especially the posture of hip-disease is apt to be imitated by the drawing-up of one side of the pelvis and rotating it, so that the limb looks shortened.

The conjunction of pain and stiffness in a joint always looks like real disease ; but you may generally detect the mimicry by observing that, while these things would in-

dicating disease of much severity, everything else is as if there were no disease, or at most only a very mild arthritis. The inconsistency of the several parts of the case exposes its true nature. Lately I had to see a young lady, with a reported healthy nervous system, whom I found lying in bed with extreme contraction of the thigh towards the pelvis, pain at the hip and knee, increased pain on any touching near the hip-joint, and especially great pain and tenderness at and about the tuberosity of the ischium. She could not bear the least attempt to straighten the joint, and the contraction was said to be persistent during sleep. She had had vomiting, hated food, and looked ill and distressed; and all these troubles were ascribed to slight injury or over-fatigue a few days previously. The case looked very like real disease of the hip; but if it had been so at all it must have been a very acute disease, swift and severe, such as should have had attendant fever. Yet the pulse and temperature were natural, and there was certainly nothing in the case which might not be explained by mere nerve-disturbance. And the event proved that there was no organic disease, for after a few days' rest, with careful food, and some wine, and mental quietude, the pain ceased, and then very slowly the limb resumed its natural power and posture, and the young lady married and is well.

Let me here tell you of two or three notable groups of cases of pain and stiffness of joints without real disease. None are more frequent than those of boys from 10 to 15, who complain of pain and declare themselves unable to walk after injuries of the ankle or knee, or who disuse their arms for pain after injuries of the elbow or other

part. They describe the pain as horrible, and hold their limbs in some unnatural position, and limp and cry when you try to make them walk ; yet you can find nothing wrong in the shape, or size, or temperature of the joint, or in the general health. It is very hard to say whether they are shamming or neuralgic ; but the utter inconsistency of their cases proves that they are the one or the other, and you must make them use their limbs. They will often do it better if you have first moved the joint severely for them, and 'loosened' it.

Something like these, yet different in having little or no pain, are the children who mimic a disease of a joint through fear. After a hurt the immense care bestowed on a joint, and the earnest injunctions not to move it, seem to impress some children's minds so deeply that, long after all is well, they hold up their joints scrupulously and timidly, and dare not try to use them. You may amuse yourselves with the astonishment with which both child and parents find, on a positive assurance, that walking or any other use of the lame limb is quite easy and painless.

Another group allied with these is that in which you find young people with joints contracted by involuntary and quiet muscular power after injury. The joints are painless unless when great force is used at them ; and you can easily feel that their stiffness is not through inflammation or adhesion, but through muscular resistance like that which sometimes produces wry-neck directly or very soon after a blow. You feel a kind of elastic recoil at efforts to move them, as if the effort were resisted by a tough elastic substance. Ether or chloroform decides at

once the diagnosis: as soon as the patient is insensible the joint becomes moveable as widely and as smoothly as an uninjured healthy one, and only slowly if ever stiffens again.

Just like these are the ordinary cases of painless stiff joints in hysterical girls: the muscles hold them fixed, and that is all; the joints are healthy to the touch and the sight, and even to the patients are painless unless violently used.

In all these cases the ground of diagnosis is essentially the same. You have one or two or three signs of the disease of a joint present in an extremely marked degree, or at least well marked; a pain, or a stiffness, or both, and limping or other consequent disability, such as would exist in a joint severely or long diseased. But with a joint really thus diseased there should be—unless it had some chronic-rheumatic, or gouty trouble—swelling, or heat, or spoiled shape, or general wasting of the limb, or all these together; and with them usually some disturbance of the general health. The absence of these is weightier evidence than the presence of the other symptoms.

All that I have just been saying relates to the distortion of joints produced by muscular action, not to deformity due to displacement of one or more of the bones forming the joint, such deformity as you see, for instance, in the knee, when the tibia falls backwards and outwards from the femur, or is rotated by the weight of the foot, on which also the bedclothes may have been allowed to rest. When this or any similar deformity exists, it is a nearly sure sign of real disease, past or present, for it can

scarcely happen except through textural changes, through softening of the ligaments and other structures about the joints permitting one bone to move away from the other. Now such softening as this can hardly take place except in inflammation. I will not say that it is impossible, but I know that it is very rare. Posture alone, though very long-continued, will not produce deformity of joints with displacement of bones. I saw a gentleman who, in a half-lunatic condition, sat for five years in the same posture, and was credibly said to have never moved. At the end of this time his knee-joints were contracted to a right angle, and felt as if absolutely fixed ; yet they were not deformed. Their bones had their right relations ; and, after some weeks of extension with instruments, the knees were straightened, and power over them was completely gained.

So, too, in a case told me by Professor Flower. A man, whose skeleton is at Marburg, was encased by his relatives for twenty years in a space in which he could only sit with his limbs doubled-up, and in which he could have had only very narrowly restrained movements of his joints ; yet his limbs did not become deformed, and his joints retained their normal textures. And many a case of hysterical joint, after being contracted for years, has recovered without any error of shape.

Speaking generally, then, the presence of deformity in a joint reputed diseased may be taken as certain evidence that it was or is diseased, and the absence of such deformity in a joint which has been long very painful, or, in other characters, has seemed acutely diseased, is nearly as certain evidence that there has not been acute inflam-

mation ; unless, indeed, the shape of the joint has been maintained by careful treatment. A few weeks of acute inflammation of a joint will almost certainly change its shape and the relations of its bones, unless care is taken to prevent the change ; but even many months of mimicry of acute disease will not produce or permit such change.

## LECTURE IV.

IF it seem strange to you that I should devote two lectures to the subject of the mimicry of diseases of joints—a subject which is usually dismissed with a few lines,—let me say that I estimate its importance by what I know to be its difficulty. I rarely pass a week without seeing at least one very doubtful case, in which a diagnosis cannot be made without a complete consideration of all the symptoms discussed in the last lecture and of others to be spoken of in this. For difficulties such as these, two lectures may be tedious, but they are not superfluous.

Let us, then, go on with the symptoms of diseases of joints, and see how the mimic may be distinguished from the real. And the next shall be the wastings of limbs near the affected joints. This wasting occurs quickly in nearly all acute inflammations of joints; more slowly in the chronic inflammations. In the chronic it may be from disuse alone: in the acute it is not so; for it is much more rapid and extensive than in any cases of mere disuse. Compare, for instance, cases of fracture of the thigh with those of acute disease of the hip, and you will easily see how much greater is the wasting with acute disease than with disuse alone. Rapid wasting may be seen in the whole lower limb, especially in the thigh and the nates, in all acute hip-joint-diseases; more slow



wasting in the painless scrofulous diseases ; less in the chronic rheumatic. Wasting in the lower part of the anterior and lateral muscles of the thigh is quickly evident in acute knee-joint-disease ; only less quickly in the chronic. In similar affections of the shoulder you may see it in the flatness of the deltoid and of the muscular coverings of the scapula ; and I think that the same wasting occurs, in greater or less degree, in all muscles near joints that are inflamed ; and the more quickly, the more acute the inflammation. It is, I repeat, not a mere wasting from disuse : it is far more rapid than that ; more like what has been called acute atrophy of muscles, such as may be seen in the swiftest cases of infantile paralysis.

This process of wasting is one of singular interest in pathology. I wish I could explain it better than by calling it reflex atrophy. It seems dependent on disordered nervous influence, and often appears proportionate to the coincident pain, as if it were due to the disturbance of some nutritive nervous centre, irritated by the painful state of sensitive nerve-fibres.

But, however the wasting may be explained, it is, unhappily for our present needs, not certainly diagnostic of real joint-disease. You may find it nearly as marked, though not so quickly progressive, in some nervous affections as it is in acute inflammatory joint-disease. I say you may, not you will ; and I cannot tell you in what nerve-cases it will be found, in what be absent. I believe it is in inflammations of nerves or in inflammations involving spinal ganglia ; but I cannot tell. However, as to diagnosis, you may find inflammation of the hip-joint imitated, so far as pain and wasting are concerned, by

some painful affections of the sciatic nerve ; inflammation of the shoulder-joint by painful affections of parts of the brachial plexus ; and, more frequently, the wasting at the lower part of the thigh, which is common with acute inflammation of the knee-joint, is closely imitated in the cases of certain knee-joints which are painful but not inflamed. In the cases of this kind that I have seen there was no sign of inflammation besides the pain ; no heat, no adequate swelling—if, indeed, there were any at all ; the patients were nervous or hysterical, and at the end the joint though wasted was unchanged in shape and structure.

You may hold, then, that, generally, the wasting of the muscles about a suspected joint adds to the suspicion that it is or has been inflamed ; but you must hold this cautiously. You must expect to meet with cases, however rarely, in which similar wasting attends pain at a joint without inflammation. But, all the more because of these cases, you may hold that if a joint has long been very painful, and yet there is no wasting of the muscles near it, it is not inflamed.

Let me tell you, by the way, that wasting at the knee is commonly produced and is always aggravated by the wearing of elastic knee-caps or tight bandages. I have often been surprised to see how quickly and to what extent these pressures will produce wasting of muscles and weakness, aggravating all the trouble consequent on injuries and diseases of joints. They will in this way do such damage, that, except for comfort during active exercise, or for the purpose of reducing chronic thickenings and collections of synovial fluid in joints, I believe they ought never to be used.

Wasting, then, can be only cautiously judged as among signs of real joint-disease; it is too common in mimicry to be a safe sign of reality. And so is another sign; impaired utility, or awkward use, such as we have to observe most often in limping or other manner of lameness.

The use to be made of this sign in diagnosis is as of pain: It may be absurdly exaggerated, caricatured; and by mere excess may prove itself unmeaning, as when a patient in good general health, and with a cool or cold well-shaped foot, has maintained for many weeks that it is impossible to bear weight on the foot; or when one, in whose knee you can neither feel nor see any wrong, goes limping as if with an utterly ruined joint. Here, as in many other cases, inconsistency proves unreality.

The difficulty of diagnosis is far greater when there is only slight limping or other impaired use of a joint. Here you had better be very watchful and cautious, and err, if at all, on the side of believing in real disease; for the cases are frequent, especially in children, and in serious diseases of the hip, in which the first, and for a long time the only, sign of real disease is some limping or other erroneous use of a joint.

As you watch the cases in which limping or some manner of lameness is the chief or only apparent sign of disease of a joint, you will find that some depend on, or are ascribed to, mere muscular weakness of the limb, some on a partial slight chorea. The former are often associated with what Sir B. Brodie pointed out as sometimes occurring in hysterical persons—a peculiar laxity or limpness of joints. These are not difficult of diagnosis;

if a really diseased joint is loose the disease is very plain. The choreal cases are more likely to deceive. In some there is a sort of string-halt—a quick jerk-up of the heel at every step, faintly suggesting some affection of the knee-joint. Much more puzzling are the cases of slight chorea of the whole lower limb in which, as a patient walks, he limps, and jerks, and throws-out his leg, somewhat after the manner of one with early disease of the hip. The likeness is, indeed, not very marked; yet in two cases that I have seen it caused great fear: in one, because of the importance of the patient; in the other, because the limping followed a blow, and a brother of the patient was crippled with serious scrofulous disease of the hip. In this case, too, the ordinary posture assumed in standing was—by imitation, I believe—like that of diseased hip, with the half-pelvis raised and the foot pointed. The diagnosis of such cases may rest on these facts: if the other usual signs of diseased hip-joint are absent or very little marked; if the limping movements are not careful but quick and jerking; if the passive movements of the joint are complete and free; if when the patient stoops, so as to touch the feet with the hands, the figure becomes symmetrical; there is no real disease. And this will often be certified by choreal movements, such as twitchings of the face or eyelids, told of or still present.

I have thus gone through the chief reputed and usual signs of inflammatory diseases of the joints which may be imitated by nervous affections closely enough to make a diagnosis difficult. But other signs remain which are much more rarely imitated, and never closely, except in some cases of complication of nervous affections with fever

or other accidentally concurring diseases. These are swelling and local heat and fever.

Now, as to swelling of the whole or part of a joint, its absence may be nearly enough to prove that a joint in which there is intense pain or other sign of acute disease, or which has been long painful, or in any way seemed long diseased, is only nervous. Inflammation of a joint, either very acute or of long standing, can hardly be found without visible or tangible exudation in the joint-cavity or in the textures bounding it. But there are many cases in which you cannot apply this rule for diagnosis. A joint shrunk after long disease may relapse into inflammation without renewed swelling, till perhaps a residual abscess<sup>1</sup> appears. A hip-joint may be acutely inflamed without any discernible swelling; so, less often, may be a shoulder, the exudation being too little to be felt. And, making more difficulty, swelling is sometimes evident in a merely nervous joint; not indeed considerable swelling, but enough to make a mimicry of real disease much more close. You may often see this in the loose tissue by the sides of the ligamentum patellæ. The swelling sometimes appears due to such slight exudation as may ensue in any neuralgic part; like the puffiness that may come-on in facial neuralgia, or the swelling and congestion of the conjunctiva in some cases of orbital neuralgia. Such swelling is commonly transient and capricious, and the fallacy may be detected by observing that, at its greatest degree, it is not, even after long time or many repetitions, nearly proportionate to the pain or duration of the disease. For a joint which

<sup>1</sup> See Essay on Residual Abscess.

is intensely painful, with acute inflammation, or with ulceration of cartilages, should be, if not at first, yet soon after, considerably and always swollen.

In other cases, swelling of a nervous joint may be due to accidental conditions. For instance, repeated blisterings or repeated paintings with iodine will give, for a time, such thickening and puffing of the subcutaneous tissue about a joint as may be very deceptive when added to the other signs imitating inflammation of the joint. So, again, I have seen such a condition in a very marked degree produced by the long-continued use of ice about a painful joint.

On the whole, then, the absence of swelling makes it very unlikely that a joint is really diseased; so does the presence of only a trivial swelling when the nervous and muscular signs of disease are acute or of long standing; and when swelling exists it must not be counted as adding to the probability of real disease, unless it persists and is independent of such accidents as I have already named. And remember that a sensation of swelling is not unfrequently complained of when no swelling whatever exists. It is just one of the erroneous sensations to which nervous persons are prone, as they are to sensations of unnatural fulness and of weight for which there is no substantial reason. Such a mere complaint of swelling will not deceive you if you compare the suspected joint with its fellow.

But, after all, the sign most to be relied on for diagnosis between real and nervous disease of joints is the temperature. It is so important to estimate it accurately that I cannot too strongly urge you to be always study-

ing it. You should feel with a broad surface of your hand every joint very watchfully, comparing each that is supposed to be diseased with its fellow supposed or known to be healthy, till you learn, as you certainly may, to detect even a small difference of temperature in even a small part of a joint.<sup>1</sup>

When you have learnt to feel accurately the heat of a joint, you may safely rely on it for some certainties in diagnosis. A joint that feels all over cold, or cool, or not above its natural temperature, is not an inflamed joint: whatever may be the other signs of inflammation in it, it is not inflamed; you may rely on this. In the hip and shoulder, however, this test of temperature is not easily applicable. The thickness of various textures covering those joints is too great for additional temperature to be transmitted through them. But in the knee and elbow, and other smaller joints, even those of the fingers and of the tarsus and carpus, the test is easily applied and sure; and remember always, in using it, that in most persons the front of the knee-joint, and, in a less degree, the back of the elbow, are habitually cool to the touch—cooler than the arm and leg; and that in many the feet are rarely warm in health. These local variations, however, can lead to no confusion if you follow the rule—which, for other reasons as well as this, ought to be never neglected—of comparing every suspected joint with its fellow. Besides, always compare the temperature of the joint with that of the rest of the limb, for the rest of a limb may be, through disease or long defective

<sup>1</sup> Mr. Hilton strongly insists on the value of heat as a sign of local inflammation. 'Lectures on Pain and Rest,' 1863. [Ed.]

nutrition, cold ; and if one joint in it be always not cold, though it may not be fairly called hot, this may be through its being inflamed. I repeat, then, a joint which is not above its natural temperature is not an inflamed joint. But observe, besides, some rules within this rule.

A joint when first exposed for examination may feel over-warm. This may be due to its having been very warmly wrapped, or thickly covered with water-dressing, or in some other way hindered from cooling to its natural temperature. Wait, therefore, and observe whether, after a few minutes' exposure to cool air, the joint has become of the same temperature as its fellow or as the rest of the limb. If it have, you may be very nearly sure it is not inflamed ; or your suspicions that it is inflamed may increase with the time during which its cooling is delayed. Frequently only a part of a joint is inflamed, and in this case the morbidly high temperature can be felt only over the inflamed part. This limitation of a sign of inflammation which one might suppose easily diffusible is a striking fact. It is the same with the swelling, which, especially in scrofulous inflammations of joints, is often limited to a single portion.

Not rarely, when you feel a joint quite cool, the patient will tell you that it is, nevertheless, at times very hot or burning hot, and that with this heat it swells and becomes red. Such cases are common among those in which the consequences of sprains and other injuries are very prolonged in nervous persons, or even in healthy persons whose joints have been too long treated with cold douches or too long kept at rest. These joints are commonly reported as getting very hot every evening,



and as being subject to painful heats, tingling, and burning. In any such case you may decide that the joint is not inflamed. If it were, it should be over-warm all day and all night. The occasional heat is only due to flushing, such as some nervous people have in their faces after their meals, or such as women commonly have at the time of ceasing to menstruate. I call it flushing, not blushing, for it is not associated with any mental state; indeed, it may seem strange that, among all the nervous people with joints that are the constant objects of their attention, one never sees blushing of the skin over them when they are being looked at. All such turgescence and transient heat are consistent with complete absence of organic disease. Doubtless the same thing may happen in inflamed parts; they are sometimes hotter than at other times, more swollen and more painful, having periods of exacerbation; but then they are never of natural temperature—they are always more or less too hot. It is very different with the mimeries of inflammation in joints; here the over-heat is only at times, at night or at some nearly regular hour, or after exercise or fatigue. A joint which is cold by day and hot by night is not an inflamed joint—that is certain.

The certainty of the diagnosis based on coldness is, if possible, increased by coincident duskiness of the skin—by its having the dull purplish tint which is commonly called blue or a dull pink. Such colours may be seen at joints long inflamed, but in these cases they are associated with over-heat; when they are associated with coldness, they are characteristic of anything rather than inflammation. Besides, with inflammation the colours of

over-fulness of bloodvessels are only at the inflamed parts; with congestion in cold nervous joints they are commonly much more widely diffused.

Lastly, as to fever associated with a supposed inflammation of a joint. It may help you to diagnosis in some few cases, chiefly in those in which the pain is very severe, or in which there are other signs like any of those of acute inflammation. For no very acute inflammation of a considerable joint can exist without fever; and therefore, when a patient's general temperature is normal, you may be very doubtful, to say the least, whether an intensely painful joint is inflamed. But the reverse is not true; the temperature may be frequently or habitually high, though a suspected joint be only neuralgic or in some other mimicry of acute disease. For the patient may be tuberculous, or, with some casual illness may have a high temperature, or he may be recently convalescent from acute fever. Moreover, a very slight degree of inflammation in a joint in a very nervous person may be associated with a disproportionately high general temperature. This is in accordance with a general rule already mentioned—that in those with alert and mobile nervous systems a slight local inflammation may produce or be associated with a great increase of general temperature. In similar persons, fatigue or passing excitement will raise the temperature to  $100^{\circ}$ , or, I think, to  $101^{\circ}$ ; and in their convalescence from acute illness—a condition in which nervous mimicry, as well as real joint-disease, is apt to appear—they have widely variable temperature. You must therefore hold, as a general rule, that, in very nervous persons, the tempera-

ture must be studied many times, and with circumspection, before it is counted as an addition to the evidences of their having real joint-disease. Within the last few days I have been very nearly deceived in such a case. A gentleman, about thirty, had what he described as frightful paroxysmal pain in one knee—pain such as might have been in the most acute inflammation of the joint; and there were some heat, some swelling, and a general temperature of  $101^{\circ}$ . These things had ‘come of themselves’ within three or four days, and the patient looked very ill. Of course he was treated cautiously; and all subsided so quickly as to make it sure that no serious, if indeed any, organic disease had existed. It was a nervous mimicry ensuing upon excessive and unsuccessful work.

## LECTURE V.

ON NERVOUS MIMICRY (NEUROMIMESIS) OF DISEASES OF  
THE SPINE.

FOR the next group of cases of neuromimesis, or nervous mimicry, I will take those of Diseases of the Spine. They are nearly as frequent as the imitations of diseases of the joints ; and their diagnosis, of which alone I shall speak, may be studied in the same way ; weighing the evidence of each of the chief local symptoms, and then adding or subtracting whatever may be gathered from the patient's constitution and the history of the case.

The chief things to study in the spine are pain, stiffness, weakness, and deformity.

As to pain—spineache and backache, often not distinguishable, are perhaps the most common sufferings of the whole class of hysterical and other such nervous patients. Few escape them. But, then, similar pain is so common in other patients besides the nervous, and is found in so many and so various diseases, that pain alone can rarely decide a diagnosis. I must leave out of the question all the ‘backaches’ that belong to lumbago, rheumatic gout, uterine, ovarian, renal, and other maladies, and try to answer for you only this : Are there any characters by which we may distinguish between pain that signifies real disease of the spine and pain that mimics such disease ?

Well, we cannot always do so. There is no pain which is characteristic of real spinal disease—no manner of pain which may not be closely mimicked; but, in many cases, the nervous mimic-pain has characters which are not all found together in real disease of the spine.

Nervous spineache is often described as very severe—raging, racking, as if the back were breaking, and so on. Now, such pain as this does not occur in real spinal disease, unless when the pain of some slight disease is immensely exaggerated in a nervous constitution, or in the acutest form of inflammation of the vertebræ—a very rare disease, always associated with serious general illness and impaired mobility of the spine. If there be no considerable attendant illness, an intense and horrible pain in or at the spine does not mean serious disease of the spine. I do not say that such pain is always merely ‘nervous’ when it is the only wrong complained of. It may be due to aneurism, or cancer, or to some distant malady in a nervous constitution; but, unless in the two cases I just now mentioned, it is not a sign of spinal disease.

And this negative becomes the stronger when with such a pain there is excessive tenderness of one or more parts of the spine. Some tenderness on pressure of spinous processes may be found with real disease of the spine or cerebro-spinal membranes; but excessive tenderness is not, unless in the rare instances of periostitis of one or more spinous processes, which are usually associated, I think, with syphilis. It is rather characteristic of merely nervous disorder, of the so-called spinal irritation, and usually you find it, not at one, but at two or more

parts of the spine, most frequently between the scapulæ and at the loin. At these tender spots the nervous patients cannot bear to be touched ; they flinch and writhe when the finger taps or presses them very gently. You may be nearly sure that there is no disease of the spine when you see this, or when the tender parts of the spine are not painful in moving or in coughing or sneezing. And you may be quite sure, I believe, when a gentle blow or pressure produces more pain than a hard one, or when you find the same pain or flinching if the skin over or near the spine is pinched without pressing on the spine itself.

Again, the merely nervous pain is usually variable, though it may be never wholly absent ; and its variations seem to be more dependent than those of real diseases are on disorders of distant organs, as the ovaries or uterus, the colon or rectum. In these variations the pain may seem paroxysmal, but I think it is not often so of itself.

Another usual character of this pain is its frequently extreme increase in fatigue, not only in bodily fatigue, as in long sitting upright or standing, but in long occupation of any kind, even in mental occupation if it is not very agreeable. With this character, also, it is common for the pain to be accompanied by nausea or even vomiting, and it is a nearly sure sign of merely nervous disorder if pressure on the spine produces shivering or nausea, or a feeling of going to be sick.

And, lastly, it is a sign of nervous pain alone if the pain has lasted many weeks or months, and nothing has come of it ; no immobility of the spine or ribs, no

paralysis, no fever, or wasting, or great disturbance of the general health.

I think you may be sure that a patient in whom you find all or most of these characters of pain in the spine has not spinal disease. But you will find many with pain like enough to this to excite suspicion, though not nearly like enough for conviction; many in whose cases the diagnosis must rest much more on other signs than that of pain. Among these, let me warn you that the greater danger is that of thinking cases to be mimics of disease, or 'muscular' or 'only rheumatic,' when they are really serious organic diseases of the spine or of parts within it. I will try to diminish the danger of being wrong in either direction by mentioning some of the more frequent groups of cases difficult of diagnosis.

The curvatures of the spine that occur frequently in young persons are often painless, are seldom very painful, and have no characteristic pain: yet pain of any kind should always lead you to examine for curvature, and to suspect, if there be curvature already, that it is increasing. And the same rule should be observed with older patients; for it is not extremely rare for lateral curvature to begin after middle age, nor at all rare for it to increase at any period of life. In either case there may be pain, for which the spine should be often looked at for signs of disease more characteristic than the pain alone can be.

Aching spines are common in men with very nervous constitutions—in such as might be called hysterical with as much justice as many women are. Especially they are common in such men from thirty to fifty or more, and in women who retain their nervous or completely hysterical

constitution to the middle or later times of life, and in whom, very probably, it is mingled with gout. There are far more cases of this sort in the cultivated classes of society than you are likely to suppose : men and women of mature or post-mature age, with spines whose nervous achings disable them from active life—at least from active bodily life ; for in some of them the mental life is as active as if it really took their whole nervous force for its own use. They suffer severely, are painfully fatigued with exercise, have no comfort unless when they are lying down or reclining with their backs firmly supported ; even slight manual work tires them : and yet in some of them the mind seems incapable of fatigue, or it only tells its fatigue in some increase of their spineache, or in feelings of nausea or vomiting. In many of these cases the diagnosis is not difficult : the nervous constitution is very strongly marked, and, after months or years of weariness and ache, you find the spine as straight, strong, and pliant as ever.

And yet among these are the chief cases in which you must be on the watch, lest you overlook a really 'diseased spine ; for, among elderly persons, you may not only, as I have said just now, find cases of beginning or increasing lateral curvature, but, occasionally, one of disease leading to angular curvature, setting in very insidiously like a case of nervous pain or chronic rheumatism. The first sign of this is, usually, a constant aching, which is sometimes even severe, fixed to one part of the spine, or radiating from it, or extending round the sides ; and there may be some tenderness. But, chiefly, you may know them by the diminished mobility of the affected



part of the spine and of the adjacent ribs. The patient holds the affected part of the spine as still as he can, when he turns or bends. If he coughs he does it carefully, and sneezing is very painful. If the dorsal portion of the spine be affected, the corresponding ribs scarcely move; if the cervical, pressure on the top of the head is often painful. After some few weeks of such pain, yielding of the spine may become evident. If the patient is the first to notice it, he feels himself stooping, or obliged to support himself with his hands, or not so tall as he was; and, when you strip him, you may find two or three vertebral spines projecting in an incurable angular curve.

These things, you see, are much the same as those by which you recognise the progress of many cases of caries of the spine in children and young persons, and I suppose that this disease in elder persons is of the same kind. But I have<sup>1</sup> not yet seen a fatal case or one examined after death; and I have seen only one in which abscess was associated with the angular curvature.

You may make another group of cases from other patients, in whom a strain of any part of the spine is followed by a very long abiding pain. Some of these will tell you that at the strain they felt, or even heard, something crack, and that they have had pain and weakness ever since—aching, wearing pain, increased by exercise, or in certain postures. Here again I must advise caution, especially when the injury is recent. In a large majority of these cases, the long-abiding pain and other signs of spinal disease may be referred to the same nervous

<sup>1</sup> See Essay on Senile Scrofula,

mimicry as we see in those whose sprained knees or ankles remain for weeks or months painful and weak, yet without disease. But in some the pain continues because, as may happen in an injured joint, the injury has been followed by inflammation ; and this may be of serious form. The pain alone will not prove it ; but you may be afraid of it when you find diminished mobility of the spine or ribs, great pain in coughing, greater in sneezing ; and much more afraid when you find occasional or constant fever, and loss of weight and general strength. In short, for the diagnosis between the real and the mimic diseases following injuries of the spine, you may study by the rules which are more easily learnt in the similar affections after injuries of the joints.

It is happy for our need of diagnosis that the impairments of the mobility and strength of the spine are more significant than its pains. The spine or any part of it, when really diseased, is often stiff and weak, though other signs of disease are absent or ill-marked ; in the mimicry the mobility is often perfect, though other signs are vehement.

Fixity of the spine or of any part of it is extremely rare in any nervous mimicry. I will not say that it is never seen, but it is so rare that when you find a patient carefully—not with muscular spasm, but with care—holding his head and neck or any part of his back very still, turning himself or bending cautiously, you must look for disease of the spine. There may be muscular rheumatism, or inflamed cellular tissue, or abscess, or whatever else may give pain in moving ; but there is not likely to be only a nervous mimicry of spinal disease.

This fixity of spine is the more significant of real disease the less the attendant pain. Still more so is it when the ribs connected with the suspected and stiff part of the spine are also motionless or too little moved in breathing, and when the breathing is chiefly diaphragmatic. There may in this case be disease within the chest—perhaps the pleurisy that is often associated with acute inflammation of the dorsal part of the spine; or it may be very uncertain what disease of the spine there is; but it is very nearly certain—as certain, I think, as any diagnosis of unseen disease—that there is not a mere mimicry. Whenever you are told of ‘spinal irritation,’ ‘hysteric spine,’ or whatever else an unreal disorder at the spine may be named, look carefully to the mobility of the spine and ribs; if it is impaired, look much further before you venture to conclude that the malady is only nervous.

The very opposite state of the spine, in which it is all limp, so that when the patient tries to sit up, he, or more often she, bends or tumbles this way or that, like a baby, is nearly certain to be without organic disease. There may be real paraplegia; if there be not, you may believe the weak tumbling spine is in itself healthy, though it may contain an idiotic spinal marrow; as a good skull may hold very foolish brains.

A feeling of weakness or giving-way at one part of the spine is ambiguous. It is often complained of in neuromimesis; but it is also often present in carious or other real disease of the spine. It must always be considered likely to be a grave symptom if the patient habitually, and almost unconsciously, helps to support

the spine with the hands or elbows as he sits. Of course this self-supporting posture may be either unintentionally or on purpose imitated in a nervous mimicry; but it so often has a real meaning that it must not be made light of, unless all other evidences of mimicry are clear.

You will often find that with this weakness of one part of the spine there is some distress in moving it. The patient does not willingly rise or turn in bed, and if he walks he does it slowly, often stooping or leaning forward, going stiffly or shuffling, not staggering or unsteady unless the spinal marrow be involved in the disease. This sign is, I think, less rarely mimicked than the last; the two together are weighty evidence for real spinal disease, and if defective movement of the ribs be added you had better believe that the spine is certainly diseased; whether with struma or rheumatism, or whatever else.

The other leading sign for the diagnosis between real and mimic diseases of the spine is in its shape. Is it mis-shapen, wrongly curved, or in any way deformed? If so, it probably is or was really diseased; and yet even here is room for error.

An angular curvature of the spine—I mean such backward outstanding of one or more vertebræ as is due to thinning or loss of substance of their bodies or inter-vertebral discs—is, I believe, quite inimitable by any nervous or muscular condition. But in not a few persons you will find that one or two vertebral spines naturally project a little, or are placed a little on one side of the exact line or curve in which they should be. This is most often seen in the lower dorsal and lumbar part of the spine; but it is so little like disease that it would be

unnoticed if spine-ache or some fright about curved spine did not call attention to it. I think you will seldom have any difficulty in distinguishing this natural error from any effect of disease.

A lateral curvature of the spine may be imitated by disorderly muscular action; not, indeed, perfectly, yet near enough to be often deceptive. Spasmodic wry-neck is well enough known, and may imitate the distortion of considerable disease of the cervical part of the spine. Lateral curvature of the dorsal and lumbar parts from similar muscular disturbance is much rarer, but you may expect to meet with it; and you may often detect the mimicry by noticing that the curvature has formed very quickly or even suddenly, and has become marked or extreme in so short a time as could not have sufficed for a real lateral curvature. A few days will make an imitation-curvature stronger than as many months will make a real one. Besides, the mimic curvature is not a perfect likeness. It is sometimes single, though very marked; real lateral curvatures, if very marked, are at least double; and the vertebræ are little or not at all rotated, as they are in well-marked real lateral curvatures. If these signs of distinction are not enough, ether or chloroform will help. You can straighten the mimic curvature when the muscles cannot act; you cannot so straighten a real curvature.

Other deformities of the spine may be imitated by hysterical and other such persons. The spine may be rotated without curvature, or drawn to one side, so as to go-up obliquely from the pelvis; or in those with very weak, limp spines there may be, when their trunks should

be erect, an appearance of an uniform posterior curvature. But I believe you may easily detect the mimicry in all these. Most of them are extravagant, going beyond almost any real deformity of the kind that such a patient could have; and, almost always the wrong may be righted by putting the patient in some unusual position, as lying very flat on the back or front, or with the hands touching the feet, or hanging on a swing. By these, or the like means, you may out-trick the trickery of the muscles.

One thing more: you will often be consulted about irregularities of the scapulæ. Lady-mothers are always watching their daughters' shoulders (happily for sons, their's are neglected), and any unlikeness of the shoulder-blades, such as one being higher, or further back, or smaller, than the other, is an alarm of curvature of the spine. The alarm is usually premature or false. A difference between the scapulæ may be due to muscular trick or awkwardness, or overwriting with the shoulder pushed-up, or any of several other things; but if you cannot see in the spine or ribs some wrong curvature, rotation, or other mis-shape, the position of a scapula does not prove it. Still, these and the like cases are often hard to advise in, for the higher education of girls is apt to promote all those things which are favourable to the production of both real and mimic diseases of the spine. Wearisome mental occupation; long writing, with the spine twisted and the shoulder thrust-up; long upright sitting, fatiguing drill and calisthenics; denial of most natural exercises, and of rests at will, or in any easy posture which is thought ungraceful—these and the like

things in the education of girls are equally favourable to the development of the nervous constitution, and to the production of various backaches, and to the deforming of the spine. You must do your best in all such cases to discern what is real, and what is mimic. I can give you no general rules about them.

In trying to teach the diagnosis between the mimic and the real diseases of the spine, I have purposely spoken of only those signs which are usual in the early stages of the real diseases, for it is only in these early stages that the diagnosis can be difficult. A well-marked unalterable deformity of the spine leaves no question about mimicry, unless it be about the nature of some accompanying pain. The appearance of swelling, like a chronic abscess, by the side of the spine or in the groin may not make you sure that the spine is diseased, but at least it answers any questions about mimicry; and so do hectic fever, and habitually high temperature, and constant wasting. These things need no teaching: but I must speak of one more set of symptoms—the paralytic, the losses of sensation, or more frequently of muscular power in the limbs,—which may be associated with diseases of the spine. I must refer to them, though I believe they very rarely give help in diagnosis. For paralysis due to disease extending from the spine to the spinal cord is rare, except in the later stages of disease, and of these the evidence is clear enough without the paralysis. And when paralysis happens in what you may suspect to be the beginning of disease of the spine, it will very seldom help you, for you cannot tell that which is due to disease commencing in the spine from

that which is due to disease commencing in the cord. And, lastly, if you are suspecting a mimicry of disease of the spine, here, again, paralysis may not help the diagnosis, for itself also may be mimicry.

Thus your only surety for right diagnosis between real and mimic affections of the spine is in the examination first of the spine itself, and then of the patient's constitution.



## LECTURE VI.

## NERVOUS MIMICRY (NEUROMIMESIS) OF TUMOURS.

I SAID in my first lecture that I should treat of nervous mimicry from only the surgical point of view. From even this limited view many things may be seen which I must omit, as mimic paraplegia, mimic tetanus, mimic aphonia, and others. Concerning these you may find guidance to diagnosis in the best works on Hysteria. I will take now a set of cases that have been much less written of—the nervous mimicries of tumours. Of these there are three principal forms: the muscular or phantom tumours, the imitations of aneurisms, and those of cancers.

In what are called phantom tumours the imitation is due to the swelling of part of a muscle during contraction. This part, swelling and becoming harder than the rest, feels something like a smooth round or oval tumour or cyst, placed in or between the muscles. The rest of the muscle feels natural, whether relaxed or contracted. In the former state the apparent tumour is most distinctly felt; in the latter state it may be nearly concealed, as if sinking in the muscle.

This condition is altogether a strange one—not imitated, so far as I know, in any other state of muscle, unless it be in crimping, or in the flickering and passing contractions of dying muscles, or in the lumps

which, it is said, may form in those that are struck soon after apparent death in any acute fever. If it may be compared with anything in living muscles, it may be with cramp which draws them into knots or lumps; but there is no pain in phantom tumours as there is in cramp. Whatever it may be, the condition seems due to erroneous nerve-force in the muscle; for one form, the phantom tumours of the abdominal muscles, is most frequent in evidently hysterical women, and in other cases that I have seen there was certainly an abnormal state of nervous system, and in others it was very probable.

Three cases which I chance to have seen lately may illustrate the disease.

In one, a gentleman about sixty years old, came to me for a tumour, as he thought, in his right calf; and I found in the mid-substance of his gastrocnemius what seemed to be a roundish smooth lump, nearly two inches in diameter. While examining it I seemed sometimes to lose it altogether, as if it slipped away or receded into the depths of the calf: and then, after a time, I convinced myself that it had no real existence as a tumour; that it could be put-out by friction, or by complete relaxation of the muscle, or in some postures of the limb. It seemed due to defective or disorderly nerve-force in the muscle; for the patient had been slowly becoming very feeble in his lower limbs, and had the slow, short-stepping, shuffling gait, and weak, monotonous voice and unclear speech, which, I suppose, betokened senile degeneracy of nervous centres.

The second case was that of a clergyman, about thirty, who came for weakness of the lower limbs and

frequent falling, which he was disposed to ascribe, in some measure, to a 'lump' near his left knee-joint, and another, less prominent, near the right. His calves were very large and muscular; his thighs small and weak;<sup>1</sup> and the lumps were swellings of the lower ends of the internal vasti, when, with the other wasted and weak muscles of the fronts of the thighs, they contracted. They did, indeed, look something like smooth oval cysts by the knees; but they subsided so quickly and completely when the action of the muscles ceased, that there was no difficulty in seeing what they were. And here, too was nervous defect.

The third case was that of a lady about sixty, who had had a tumour on or over her left parotid. This had been removed about eight years before I saw her, and in the operation the facial nerve was injured, so that the left facial muscles were partially paralysed and subject to occasional twitchings during emotion. In the last year there had been a renewed superficial growth over the parotid, and with this an increase in the facial twitches. But what much more alarmed the patient was the appearance of a tumour, as she thought, below the left clavicle. This was the clavicular portion of the pectoralis major, partially contracted and hard, and perhaps made irritable, or more attractive to the alarmed attention, by the frequent twitchings of the platysma. All appearance of tumour was spoiled by raising the arm above the head; when the muscle was completely relaxed it all felt as soft and natural as its fellow.

<sup>1</sup> In some of its features this case resembles the pseudo-hypertrophic muscular paralysis of Duchenne.

This last patient was over-sensitive and excitable, and probably augmented the disorderly action of her muscle by her too careful attention to it. The direction of the mind alone may, indeed, suffice to make, in some persons, a distant imitation of a tumour in a muscle. I once saw a gentleman who was possessed with the fear that he would die of psoas abscess because his brother did ; and, for a day or more, he was constantly pressing his abdomen towards the psoas by the spine, till a part of his external oblique abdominal muscle had become so irritable that it hardened and swelled at every attempt at pressure, and felt something like a tumour. All this ceased when it was completely relaxed by posture. But in ordinary cases the mind seems to have nothing to do with the phantom. The first two cases were in very ordinary gentlemen, and mental influence could not fairly be assigned as any reason for their mimicry of tumours.

There should be no great difficulty of diagnosis in the ordinary cases of this kind. A real tumour that lies deep in or beneath thick muscle may be pressed down beyond clear touch when the muscle contracts and hardens ; and it may be difficult to feel the boundaries of a venous tumour or *nævus* in a deep or thick muscle. But these things will not mislead you if you will study the case long enough to be clear as to the inconstancy of appearance. If in one minute an apparent tumour is under the fingers, and in the next minute is gone ; if it shifts from one part of a muscle to another, as one set of fibres after another contracts ; if it wholly disappears when the muscle is long relaxed,—this is a phantom, a mere mimicry of a tumour.

There is rather more difficulty in some of the cases of phantom tumours which occur in the abdominal muscles of hysterical women. These are sometimes large, hard, and more nearly fixed in place, size, and form, than those in the limbs, and they may be deceptively complicated with disorderly states of the intestines, or the aorta, or other abdominal or pelvic organs. But in any case, however difficult of diagnosis, ether or chloroform will bring all the help you need. With complete insensibility and muscular relaxation all signs of tumour disappear—the phantom vanishes.

Let me tell you the most striking case of this kind that I have seen. It was in a healthy-looking woman, about thirty years of age, in Sitwell ward. I admitted her for a tumour in the upper part of the abdomen, behind, as it seemed, the first division of the left rectus abdominis muscle, but larger than that seemed. It was roundish, firm, nearly hard, constant in its characters and place, often painful, and distinctly pulsating, like an aneurism. A light bruit was audible in it. Of its history I only remember well that there was nothing to help in diagnosis. In full medical and surgical consultation with my colleagues, the questions were whether there was a tumour with pulsation communicated from the aorta, or an aneurism. If a tumour, where, or in what? If an aneurism, of what artery? The opinions were many and various, partly, perhaps, because the examination was painful, and, therefore, possibly, incomplete. So one day I gave the patient chloroform, and the tumour, the aneurism, and the doubt dispersed; they were all phantoms.

This case, in which an abnormal nervous condition of a muscle and of the abdominal aorta appeared to be combined, may lead us to the next set of mimic tumours—the imitations of aneurisms by what I suppose to be abnormal nervous conditions of arteries. The evidences of this condition are, indeed, not complete ; but, at least, the mimicry of aneurism is more frequent in persons of nervous constitutions than in any other. It is sometimes associated with well-marked hysteria, and the likeness of aneurism often varies according to the state of the patient's nervous system.

This mimicry is most frequent in the abdominal aorta, in which it has often been described as a nervous abdominal pulsation ; but, so far as I know, it is not described as occurring in the subclavian, innominate, or carotid arteries, though in these it is not very rare, and sometimes is not easy of diagnosis. The chief characteristic of the mimicry is that the affected artery feels much larger than it should be, and pulsates largely at least in one direction, dilating obtrusively, and often so much more visibly than in an ordinary person that it is hard not to believe that it is largely dilated. And yet there certainly is no considerable dilatation ; it is rather as if the arterial walls were thin and had too little muscular resistance, as we might suppose them to be in a condition of partial paralysis of their muscular tissue. In the most marked case of imitation of abdominal aneurism that I have seen, examination after death found no disease. A lady of very nervous constitution had suffered severe sea-sickness in a passage to Ireland. The sickness scarcely ceased during her stay there, and was aggravated on her return—

voyage, after which she continued vomiting nearly all her food, till, at the end of some weeks, she died exhausted. During these weeks there was so large and strong a pulsation in her abdominal aorta that some were convinced that she had abdominal aneurism. As she lay on her back, one could see the artery pulsating behind the abdominal wall. It raised the hand laid on it, thrusting up the fingers with a firm throb and a thrill, and a low but distinct blowing was audible when the stethoscope was lightly pressed on the artery. Yet there was no aneurism. After death the artery was found absolutely healthy in both size and structure.

I say again, I do not know what is exactly the state of the arteries in these cases. There are few opportunities of examining them after death ; and I have heard of none that told more than the one I just now mentioned to you. But, clinically, these cases are well marked. The artery feels large, wide, and full ; but soft and compressible, or even, if one may so call it, puffy, without any of the hardness or stiffness felt in aneurisms. The pulsation is full, but rather soft, like that of an artery in the reaction after large loss of blood ; and, which is chiefly characteristic of the absence of dilatation or aneurism, the extra-full pulsation is in only one direction. There is no unusual lateral dilatation ; the too-much throb is only forwards.

The likeness to aneurism in these cases is sometimes greater than could well be expected ; for many things besides the excess of pulsation may contribute to it. In the abdominal aorta an unusual appearance of prominence may be given by an unusual anterior curve of the lumbar

vertebræ ; and by thinness, with concavity of the abdominal walls, and emptiness of the stomach. Hardness or toughness of the pancreas, or of lymph-glands about the aorta, may yet further increase the likeness to abdominal aneurism.

In like manner, the imitation of subclavian aneurism is made more marked when a nervously pulsating subclavian artery has glands beneath or about it ; and still more when it lies on a cervical rib, and is somewhat raised and, I suppose, widened. And the imitation of upper carotid aneurism is added-to by the very bulbous form of the first portion of the internal carotid and its occasionally tortuous course. That of the lower carotid aneurism may be augmented by enlargement of an overlying lobe of the thyroid gland.

With all these helps to difficulty you may sometimes be troubled in the diagnosis of a mere nervously pulsating artery. In nearly all the cases I have had to see aneurism was suspected ; but a few rules will ensure against error. The nervous artery has no lateral expansion ; it does not open the finger and thumb when they laterally compress it lightly ; you can trace the straight lines of its sides ; in the abdominal aorta the pulsation is lost, or nearly lost, when the patient sits leaning forward ; in the other arteries, by relaxing the parts over them. Always the artery has at least its natural softness and compressibility ; commonly it has more. There are no paroxysms of pain ; and if the case has been watched for months, or even years, there is little, or more often no, increase of size. On the other hand, the extent of artery which may feel dilated may much increase, so that we



may see and feel, for instance, an abnormal throbbing in the innominate, carotids, and subclavians of the same patient—a state unheard-of in aneurisms.

Before leaving this subject, I just mention to you the cases in which you will find, in certain patients, anæmia, enlarged thyroid gland, protruding eyeballs, and pulsating carotid arteries. The study of these cases might clear the obscure pathology of the mimic aneurisms ; but with this I am not occupied, so I leave them, and go on to the last set of tumours that I have to speak of.

It may seem absurd to say that cancerous tumours can ever be imitated by any nervous disorder ; and, indeed, they cannot ; yet you will find few cases requiring a more positive diagnosis than those in which you will have to assert, as beyond all doubt, that a patient has not cancer, but neuralgia.

The cases in which the diagnosis is most often necessary are those of suspected cancers of the breast and of the tongue. Of course any part may be similarly suspected ; but, taking all other parts together, they would not supply, at least in surgical practice, so large a number of cases of suspicion as these two.

For the breast, the usual case is that a patient complains of all the pains commonly described as characteristic of cancer. She has dull, aching pain, it may be, of the whole or some part of the breast, and often the pain extends down the arm, more often goes right through to the scapula ; and sometimes it is a darting, lancinating pain, shooting this way or that, or burning. I think that you will not find any pain of cancer of the breast which

will not be described by patients with this neuralgic mimicry of the disease.

But, however severe the pain, and however like what is supposed to be characteristic, your diagnosis may be clear. That is not cancer which you cannot feel. Cancer is a growth, not any kind of pain, and indeed in its early stages seldom attended with pain; so that when pain is strongly marked, and it is very difficult, or impossible, to feel any tumour or 'lump' in the breast, you may be certain that there is no cancer.

In most of these cases the pain has an entirely mental origin. The patients have been seeing or hearing of cancer, and their minds have been filled with thoughts of the pain and misery of the disease, till the idea has generated sensations like those from which it was derived.

I have said 'the mind has been filled;' but this is not necessary. I have known these pains mimicking the pains of cancer in persons who had indeed often thought of cancers, but never intently, or with any sustained fear. Just as one may, in dreaming, have vivid impressions of objects he has rarely, perhaps only once, seen, and scarcely ever thought of, so may these imitative pains be felt keenly and often in those who have seldom considered or feared them.

In these wholly mental cases the confident assertion of your judgment will commonly suffice for cure. Sometimes, indeed, patients need repetition of the assertion, especially those who are hysterical. Their trust seems to die-out after a few weeks or months, and some of them rather prefer the disease, or the pity to which it would give them a claim.

There are cases, however, in which the pain is not wholly mental. Neuralgia of the breast sometimes follows a blow. That which in ordinary persons would be followed by aching for some inconsiderable time is apt to be followed in the nervous by long-abiding pain, which the mind will invest with all the characters of what it supposes to be the pain of cancer. And, again, neuralgia of the breast is not rare in gouty or otherwise 'painful' persons, and most of these are ready to fear that their pain is due to cancer, and to endow it with the characters supposed to be distinctive. As fear can give to any harmless form the shape and substance of that which it most dreads, and can see spectral terrors in a scarecrow, so can it give to ordinary neuralgic pains any of the characters of the pains of cancer. It is especially prone to do this when the neuralgia is felt in a part notoriously liable to cancer. In this part fear will make pain cancerous, even while neuralgic pains, quite as severe, are common in other parts of the body, and in them are regarded without dread.

The diagnosis is more difficult when, with the pain described as like that of cancer, there is, or appears to be, some change of structure of the breast; for a very nervous patient may endow any mammary disease with any form of pain.

In these cases—which, however, are far more rare than those of neuralgia without change of structure—you must make your diagnosis on the characters of the tumour itself, if there be one. But be cautious about one or two fallacies. Many neuralgic breasts are a little larger than their painless fellows. But mere largeness is not tumour,

much less cancer. And many mammary glands, whether neuralgic or not, are rather firmer or tougher in one part than in others ; and when the tough part is grasped, and, as it were, doubled between the thumb and fingers, it may feel something like a hard tumour. Let me advise you not to use this mode of examining a mammary gland. I have known it often fallacious, never useful. If you cannot feel a tumour by feeling or pressing over and round it, you may believe there is not one ; you may be certain there is not a hard cancer.

And if you can feel a tumour, do not believe it to be cancerous merely because it is painful. Judge by what you can feel, not by what the patient feels ; remembering always that in the early stages of cancer of the breast, in which alone there is any difficulty of discerning it by its tangible characters, it is rarely very painful. All the popular ideas of the pains of cancer are derived from the cases of advanced disease, or of cancers growing rapidly or inflamed or ulcerating. In early cases, and in nearly all in which the diagnosis is obscure, the greater the pain the less is the probability of cancer. And, let me add, neuralgia, even of the severest kind and longest duration, does not tend to cancer of the breast. I must have seen more than a hundred cases of neuralgia, and I have seen only one in which it was followed by cancer, and I have no belief that in this one the sequence was a consequence.

Most of what I have said of the breast might be applied, with change of name, to the mimicry of cancer of the tongue. Nervous people hear of the cancer, and then, with less or more of thought about it, have pain and aching in their own tongues, usually at the side and in

that frequent seat of cancer, at the junction of the middle and posterior thirds. Others have neuralgia of the tongue ; a dull, heavy, aching on one side of it—a condition which is far from rare in the habitually neuralgic, especially, I think, in the gouty—and these give to their neuralgic pains what they believe to be cancerous characters. And others, with dyspepsia, have sore tips or edges of their tongues, which they, too, magnify.

It is strange to observe the tenacity with which some of these patients cling to the most dismal view of their cases. Though nothing wrong can be seen or felt, and though months, or even (as I have known) years, may pass without any disease appearing, yet will they believe themselves on the brink of misery with cancer of the tongue. But your diagnosis may be as fixed as their fears, and had better be more positive. That is not cancer which you can neither see nor feel. And do not be deceived by an unusually large cluster of papillæ of the circumvallate group, or by any little thickening due to irritation of a tooth, or by a fissure or psoriasis. A patient's fear will give any of these the sensations of cancer ; but, as I said of the breast, so here, your diagnosis must be founded, not on the patient's sensations, but on your own.

It is scarcely possible to write usefully on the treatment of a group of diseases such as those to the diagnosis of which these lectures are devoted. The central fact in every case, that is, the nervous mimicry dependent on a nervous constitution, may be constant ; but everything around it may be, in each case, different. For the

central condition there is no direct remedy ; for some of the conditions around it there may be.

In each case it is well to consider that treatment has to be directed against at least three different things : the local symptoms, the constitutional condition which may co-exist or be combined with the nervous, and the nervous constitution itself. Each of the first two may be treated as it would be in other than nervous patients, provided the treatment will not do damage to the general condition of the nervous system.

1. Thus, for pain, general narcotics do more general harm than local good : they should not be used except under urgent necessity. A nervous patient who habitually or frequently takes any narcotic is usually, I think, past hope of remedy by anything but long time. Local soothing means should be always used, and are sometimes very beneficial, such as frictions with solutions of opium, aconite, or belladonna, or plasters with belladonna or opium. All such frictions should be preceded by spongings of the part with very hot water, so that the skin at the time of friction may be, as one may say, red-hot. And this hot sponging is, of itself, often very useful. Indeed, I have known nothing so good for the painful aching spines which are common in the mimics of disease, as that the patient should sit in tepid water, and have the spine drenched again and again with water as hot as can be borne, and then warmly covered and rested. Such drenching with water wrung from sponges or cloths is better than the more forcible hot douches : they are apt to shock too much. Similar uses of hot water and of very hot poultices are advisable also for joints and other parts imitating

pains of real disease ; and I believe it would be hard to find a case in which cold applications, whether lotions, douches, icings, or any other, are not mischievous. If I were to make an exception, it would be, doubtfully, for the occasional use of the ether-spray-freezing in an intense neuralgic mimicry.

For parts that are nervously, or by erroneous long rest, stiffened, contracted, or distorted, forcible movements may be used, as I have said in the last lectures, and in that on bone-setting.<sup>1</sup> Besides, speaking generally, such parts should be regularly exercised, up to any degree short of that which repeatedly produces exhausting pain or fatigue, or is not recovered-from after a night's rest. However little can be done without these or the like consequences, it should be done, though it be but the raising of a finger ten times a day. Generally, too, the use of nervously affected parts should always be for short periods, and frequent in the day ; and after every time of exercise there should follow a much longer rest.

And this rule of long rest after exercise should be observed with the use of frictions, shampooings, douches, and other like things. Rest should follow them all.

Among other local means of treatment I think I may certainly say that local bleeding is always useless or worse ; that severe counter-irritation, or any such as produces general feverishness, usually does harm, never does real good ; that light and transient counter-irritation often seems useful, and may be very often repeated.

Galvanism is, I do not doubt, in many cases useful. Certainly, it is so in the cases of muscular inaction, whether

<sup>1</sup> P. 99.

the will-less or the power-less. But in the hap-hazard way in which it is commonly employed it is sometimes mischievous, and often useless, unless by its mental influence. Its real value is not likely to be gained without a much more careful study than is usual.

2. I believe that any other constitutional condition may co-exist or be combined with the nervous, and may make not only the diagnosis but the treatment the more difficult. Whatever treatment is employed must have respect to each constitution. The scrofulous, the tuberculous, the gouty, the rheumatic constitution may need treatment as much as the nervous. It is through this great variety of conditions complicating the nervous disorder that so great variety of treatments are supposed useful. Many patients are anæmic, and iron does them good; some are tuberculous, and some scrofulous, and these need iodides, or cod-liver oil, or various tonics; some have lithic acid diathesis; some oxalate, and the remedies that are useful to these may seem mischievous to others. A single principle of treatment governs what may be said of all these and other complications: any error, whether local or general, which complicates the essential disorder in the nervous system should, if possible, be remedied; for every such error is to the nervous system as an irritant or disturbance augmenting its disorder. Under this principle it is that in some of the cases of nervous mimicry the treatment of some malady of the uterus has seemed to cure the whole trouble; and in some, constant purgation; in some, zinc; in some, arsenic or phosphorus. I know that in many cases all these things are useless. I believe that when they have



done good, it has been by the cure of something complicating the nervous disorder, which being removed left the nervous system able to recover of itself.

3. Then, lastly, for the treatment of the nervous system itself. There is no medicinal remedy, nor, I think, any medicine which can be said to be generally useful. Iron and zinc and various tonics often seem to do some good for a time, even in those in whom there is no evidence of such complication as I just spoke of; but they do not cure.

That which I think has always to be cared-for is the full nutrition of the nervous system, by means of right food, sleep, rest, warmth and other common things of life.

The food should be ample, nutritious, mixed. No cases seem to me harder to remedy than those of nervous patients who say they cannot eat. With many of them it is only that they cannot will to eat; with some that they have so long not willed to eat, that at last the desire and all sensation of hunger have ceased. But till they do eat, I believe that nothing will do good.

If there be cases worse than these, they are the cases of the patients who cannot eat but will drink. Those who reject all food, and yet drink stimulants often in the day—stimulants of whatever kind—have no chance of being cured. They may outlive their malady, but this is the best that can be hoped for.

As to what may be eaten or drunk, I believe that very few general rules can be stated. Large quantities of tea, and of coffee, and of sugar are, I believe, generally injurious to nervous patients, and much of strong tobacco-

smoking ; but for the rest, if any selection of foods needs to be made, it must be for other errors or defects of health more than for those of the nervous system.

Sleep and rest should be carefully arranged. As a rule, I think that nervous patients should sleep at least eight hours in the twenty-four, and they may sleep one or more in the day as well as at night. But I am disposed to think that even sleeplessness is less mischievous than the frequent or habitual use of narcotics. And whether with or without sleep all exercise should be followed by long continued rest.

Warmth is always advisable—warmth of air and clothing and bedding. In some cases very fresh mountain air seems to have its full invigorating effect ; but I think these are only among such as can be active ; others must be kept warm.

But, perhaps, the most important part of the treatment of these cases is the mental part. I have referred to the infrequency of common-place minds among the patients with nervous mimicry—some being far above, some far below, some in various ways divergent from, the ideal standard average. It would, probably, always tend to the remedy of nervous mimicry if the mind could be brought to an average and uniform level, to a just medium of common sensibility and common sense. A few excellent and wise persons might be the worse for such a change ; but for all except these the change would be for the better and a chief step towards recovery.

Most of all, the will needs education in these cases. It needs to be trained to the cure of the mimicry, to the endurance of pain, to the control of movements, to the

fixing of the attention on anything rather than the supposed disease. And very often, in the worse cases, this training of the will is not possible unless the patient be separated from the persons and things associated with the disease. Many patients cannot get well at home. Some of those about them are too sympathetic ; some too hard ; some yield too much or too soon : none are really helpful ; and the patient's will becomes constantly more feeble, or more widely perverted. In conditions such as these the patient should live with quiet sensible strangers, who can teach the will and exercise and control it.

The effect of judicious education of the will in the worst cases of nervous mimicry is sometimes very striking ; complete recovery is not rare, especially in cases of mimic loss of power in the spine and limbs, and of mimic diseases of joints, and mimic gastric disorder and apepsia. But the teacher must be carefully chosen ; for among these nervous patients are some who are ready to become the very slaves of persons who have strong wills, or who profess that they are possessed of knowledge or authority that cannot or may not safely be resisted. Thus it is that the worst cases are sometimes cured by the most ignorant persons, who, by the mere confidence of their assertions, give confidence and will : but the consequences of such cures may be as bad as the disease.

### THE TREATMENT OF CARBUNCLE.

---

You have recently had the opportunity of seeing four cases of carbuncle treated in my wards after methods which you would probably describe, if asked to do so, by saying that ‘nothing was done for them.’ Here are the patients’ papers; and there is, to be sure, no medicine set-down for them to take, and you know that no surgery was inflicted on them,—and yet a good deal was done for them, though the treatment was what does commonly pass by the name of ‘doing nothing.’ They were carefully fed, washed, cleaned, and bedded; and their carbuncles were very skilfully dressed and washed with proper things; and every care was taken to shut-out all untoward influences from them.<sup>1</sup> And if any complications in their cases had arisen, these would have been immediately met. But no complications occurred; and therefore, the cases remained without treatment, as it is said—that is, without medicine, and with no active surgery, no incisions or anything of that kind. And since all these cases passed through their course very favourably, and all the patients were, or will be, discharged at a comparatively early time after their admission into the hospital, I will take this occasion of giving you some observations on the manner of treating carbuncle.

<sup>1</sup> An unavoidable repetition of part of p. 142.

Although you may not have seen much of it, you must all have heard of the ordinary manner in which carbuncles were treated formerly, and still are by some ; a method which consists mainly in making large incisions through them, and giving large quantities of food and stimulants, as well as considerable doses of quinine, bark, and other tonics. I do not at all mean to say that the things which in these cases I left undone would have done any harm ; but what I hold of them is, that they would have been quite useless, and some would have been sources of great discomfort to the patients. And in the way in which I speak of these things you may notice that I exemplify that rule which I have always impressed upon you, of asking yourselves, when you seem to have been successful with some medicine, ‘What would have happened if I had not given it?’ The apparent consequence of giving a medicine may be plain enough ; but you cannot too often repeat to yourselves the question—as a rule, I will not say of practice, but of the study of your own practice,—‘What would have happened if this or that, which seems to have been successful, had not been done?’

First, with regard to the incisions made in carbuncles. The ordinary plan, still recommended by some, is, as soon as a carbuncle is seen, to make two incisions crucially from border to border. It is said that they must go even beyond the edges of the carbuncle into the adjacent healthy textures. I have not followed this method very often, but I have followed it quite often enough to be sure that it does not produce the effects which are commonly assigned to it. It is commonly said that if

you will thus make crucial incisions into a carbuncle, you will prevent its spreading. If you can find a carbuncle two or three days old and cut it right across in both directions, I think it not unlikely that you will prevent its spreading. But even therein is a fallacy ; for there is no sign by which, on looking at a commencing carbuncle, you can tell whether it will spread or not, whether it will have a diameter of an inch, or of three, six, or ten inches. The question, therefore, that I spoke of comes back, 'What would have happened if I had not made these incisions?' And the answer to that question will be rather according to temper than according to knowledge. Habitual self-satisfaction will say, 'I saved that man's life;' self-dissatisfaction, 'I did him no good.' The true scientific temper stands midway, and says, 'I will wait for further information on the matter—till I have seen more cases, and then decide whether, in the earliest stages of carbuncle, incisions are useful or not.'

After this time of three or four days I have seen a sufficient number of carbuncles thus divided, and have divided enough for myself, to say that it will not hinder the spreading. I have seen carbuncles spread in as large a proportion of cases after incisions as in cases that have not been incised. I have in my mind a striking case that occurred to me early in practice, when I followed the routine, and, in a friend of my own, divided a carbuncle most freely. I cut it after the most approved fashion in depth and length and width, and then it spread. After two or three days more all the newly-formed part was cut as freely as the first, and then it spread again,

and again it was cut as freely. Then it spread again, and was not cut. Then, in a natural time, it ceased to spread, and all went-on well. These are only general impressions that I give you, because one cannot count the cases in which cutting has been practised, and those similar cases in which it has not; nor even then could it be said whether those in which the cutting was practised would have spread if left alone. On a very strong general impression, however, I say that carbuncles will spread after cutting in as large a proportion of cases as they will spread in without cutting.

Then it is said that carbuncles are relieved of their pain if they are thus very freely cut. Here again, however, is only a partial truth. A carbuncle of two or three days' standing, which is hard, tense, and brawny, is very painful; and cutting it will relieve, in many cases, a considerable portion of the pain. But after this, when the carbuncle begins to soften, and when pustules begin to form upon its surface, and pus in its interior, it becomes less painful of its own accord, and without incisions. Thus there are two distinct stages of carbuncle in reference to the pain; the early stage, when it is hard and still spreading, and is generally intensely painful, and the later stage, in which that pain nearly or quite ceases. A carbuncle divided in the first stage, in the first two or three days of its existence, may be relieved of some of its pain; if divided in the later stage, what little pain may exist is altogether unaffected by the cutting. And even cut as you may, you cannot always cure the extreme pain that a carbuncle sometimes has, even to its later time. Some two or three years ago, I was called to a member

of our profession with a large carbuncle in the middle of his back. His friends had been much alarmed about the state of his mind, for he had been suffering great mental anxiety for some time, and they were in fear lest the excessive pain of the carbuncle should, in his disturbed state, do his mind permanent damage. So they persuaded me to cut it, and I cut it after the old plan, very wide across, and far into the adjacent textures, as freely as could be. It did not in the least relieve him. I never saw a carbuncle through its whole course so painful as that was, and up to the last, till the healing was nearly completed, he suffered more or less pain in it. So that the conclusion in reference to pain must be this: if a carbuncle can be divided in the first three or four days, while still hard and brawny, it may be relieved of some measure of the suffering; at a later period incisions have no influence at all.

The third point is stated thus; that by the incision of carbuncles you accelerate their healing, giving facility for the exit of sloughs. But herein is the greatest fallacy of all. When the cutting of carbuncles was more customary in this hospital than it is now, when I did not cut them, and some of my colleagues did, I used to be able to compare the progress of cases cut and of cases uncut, and time after time it was evident that the cases uncut healed more readily than those cut. A man who is now in the hospital I have brought round here that I may illustrate this point to you. This is the man, Timothy C——, aged fifty-five. When he came in his carbuncle had a length of more than six inches, and a breadth of three and a half; and it formed the ordinary hard, compact, tense,



and brawny mass that a carbuncle usually does. It had at that time already begun to suppurate, and little pustules were pointing on the surface. If I had followed the practice of incisions, I should have had to make a cut in one direction of about seven inches, and in the other of about five, and after that I should have had not only the wounds wide-open and gaping and having themselves to heal, but a great part of the substance of the carbuncle fully exposed, and also under the necessity of healing. But you will observe that the whole of the space that now remains unhealed is a series of openings in the middle of the carbuncle, through which nearly the whole of the sloughs have already been discharged, and which now remain merely like the cavities of little abscesses. In this way you narrow greatly the extent of wounded surface to be healed. Indeed, it by no means always follows that the whole carbuncle, or its whole base, sloughs. Carbuncles, if not divided, not unfrequently suppurate only about their centres, and slough only in their central parts, and the borders clear-up by the softening and dispersion of the inflammatory products in them. In every case of this kind you save greatly the amount of healing which has to be gone through. Nay, in some cases carbuncles completely abort. One of these cases, of which I have the paper on the table, was that of a woman aged sixty-four, who came-in with a carbuncle nearly as large as this man's in a condition which, it might be said, required incision at once ; but, with the exception of two or three small points, no suppuration or sloughing ensued. The carbuncle dispersed, aborted, cleared away. This man's case shows the more ordinary

course of events—the sloughing of the central part, the gradual discharge of the sloughs, and the comparatively small spaces which are left in the centre of the carbuncle as the sole spaces in which healing has to be achieved.

On these three points, which are the grounds that have been assigned as reasons for cutting carbuncles, I have now given you the evidence on which I have ceased from the practice. I fully believe that crucial incisions do not prevent extension; that there is only a limited set of cases in which the incisions diminish pain; and that with regard to the time that is occupied in healing with or without incisions, the healing without incisions is very clearly and certainly the quicker.

The incisions that I have been speaking of are those made in the old plan; crucial incisions. Another method which I have occasionally tried, but of which I can only state the same general results, is that of subcutaneous incision. This has been supposed to have the same general effect as the other; and I think that the same general conclusions may be drawn respecting it: that it is a measure unnecessary in the treatment of carbuncle, and that it retards rather than hastens the healing. When I speak thus of the incision of carbuncles, however, I do not mean to say that there is no condition of carbuncle in which an incision may be useful. Sometimes a carbuncle sloughs in its central part, with one continuous slough of integument holding in a quantity of pus. In that case you should cut through the slough, or through any adjacent part of the carbuncle, to let out the pus, as you would open an ordinary abscess. But

this is not a measure which is commonly understood by the 'incision of a carbuncle.'

If you ask why you may not cut a carbuncle though it may do no good, I reply that you should never be actively useless, and that there are some cases in which the cutting does considerable harm. Carbuncles, for the most part, occur in persons broken-down in health, exhausted by overwork, or by bad food, or in deteriorated general health—as sometimes in diabetes or albuminuria; and in all these persons it is a good general rule to save the blood they need for healing. The loss of blood from the carbuncle itself would not be considerable; the hard substance of the carbuncle, when cut into, does not bleed, or bleeds but little. But to carry out the incision perfectly, you have to cut into the adjacent healthy texture; and this sometimes bleeds very profusely, so as to lead to all the distress and pain of plugging the wound with this or that substance to arrest the blood.

Another measure which is supposed to be necessary in the treatment of carbuncles, is very high feeding with large quantities of stimulants. I learned the opposite of this in one of those cases which you will always do well to study—those, namely, in which the patient refuses to do what you advise him. It is from such cases that we may often learn what is commonly called the natural history of disease, its course undisturbed by treatment. A gentleman, eighty years of age, had a carbuncle as big as it could be on the back of his neck; it extended from one ear to the other, and from his occipital spine to

the lower cervical vertebræ. He measured it for his own amusement, and it was fourteen inches over its surface transversely, and nine inches vertically—a carbuncle, then, of the largest size, and one, it might have been supposed, attended with considerable risk to life. I urged him very strongly to take a large quantity of what is called ‘support,’ for I was at that time under an impression of its necessity. He absolutely refused, and nothing would induce him to take it. I was therefore content to stand-by and study the natural history of disease in this huge carbuncle; and the natural history of it was a history that one would have wished to witness in every carbuncle of its size, for no case could pass through its course in a better method. He led his ordinary abstemious life, took moderate quantities of food and of stimulant, lived through a carbuncle of the greatest severity, and finally made a complete recovery, and lived for several years.

Another case which impressed me very much was that of a friend of my own in the profession, who had a carbuncle on the back of his neck of very considerable size. Sir Benjamin Brodie and Mr. Stanley attended him with me, and under their advice the carbuncle was cut. I watched its course afterwards, and felt sure that the cutting had done neither good nor harm. It went on as carbuncles do when not cut. But the patient was subject to intense headaches, of which he knew by experience that the only possible remedy was almost entirely to leave-off food, and absolutely and entirely to leave-off stimulants. One of these headaches occurred during the course of the carbuncle, at a time when we had put him

upon very full diet and abundant stimulant. He said then that he must leave off his stimulants and food, and we looked with some alarm at what would be the effect on the progress of the carbuncle. I remember Mr. Stanley saying to him in his distinct manner, 'My dear fellow, if you don't take food you'll die.' 'Very well,' he said, 'then I will die, but I will not take food and increase my headache.' According to his own wish, therefore, we reduced his diet to a very low level. The course of the carbuncle was not affected at all, unless it were for good; and after three or four days of this, which might be called comparative starvation, he described himself as being 'as jolly as a sand-boy.'

Since that time I have watched carefully all cases that I have seen, and I am certain that there is no good to be obtained by large feeding or abundant stimulants in ordinary cases of carbuncle. The whole of these cases that have lately been in the hospital were put on our ordinary meat diet, with a pint of porter daily; and I see that two of them have had four ounces of wine a day, one of these being a person aged sixty-four and the other sixty-three, and both having carbuncles of considerable size. You will find that for patients in private life it will do very well if you tell them that they may have about two thirds of their ordinary amount of food, and about the same proportion of their ordinary quantity of stimulants. But indeed there is scarcely any reason to change in any material degree the ordinary mode of life of a patient with carbuncle. So far as he can with comfort take that to which he is accustomed, so far he may. If

his diet has been habitually low, so it may remain ; if habitually high, so, within certain limits and somewhat reduced, it may still remain.

Now you may ask what I should set down as the things to be done for a carbuncle. These boards, nearly bare as they are, may tell you. In local treatment one of the best things you can do, if the carbuncle is small, is to cover it with *emplastrum plumbi* spread upon leather, with a hole in the middle through which the pus can exude and the slough can come away. That, occasionally changed, is all the covering that a small carbuncle will need. It is difficult thus to cover the whole surface of a large carbuncle, and to keep it clean ; therefore, I think that the best application is the common resin-*cerate*. This should be spread large enough to cover the whole carbuncle, and over it should be laid a poultice of half linseed-meal and half bread. And, if you want to exercise your skill, learn to make the poultice well, and to put it on well, and to keep it in its place well. This mode of dressing the carbuncle, so far as the materials are concerned, will last through its whole course ; but whilst the carbuncle is making progress and discharging its slough, you will find plenty of room for the exercise of considerable skill in dressing it, and filling up the cavities with soft substance spread with this ointment. Besides this, the carbuncles are to be carefully washed, especially with some deodorising substance, as Condyl's fluid, or weak carbolic acid, and the cavities may be syringed-out with it. The importance of cleanliness is very great. You noticed in the man whom I showed you just now the boils and spots of acne around the edges of

the carbuncle. This points out the necessity of care, which I suppose had not been taken here, to keep the surface of the skin adjacent to the carbuncle perfectly dry, and free from any contact with the discharge, which seems really to have the power of infecting the neighbouring skin, and so producing the boils which are apt to arise, sometimes in clusters, around the carbuncle. Of diet I have already spoken to you. Of medicines I say nothing. Quinine, bark, and other medicines of the same class, may be given if you please, or in case of evident need, and so may aperients; but there is really no need of them in an ordinary case of carbuncle. But there is one medicine which you may find very valuable, and that is opium, especially in all the earlier painful stages of carbuncle, in which it relieves the suffering as thoroughly as incisions or anything I know. After the early stages, even opium is unnecessary, except for some patient who may be unable to sleep.

But there is one measure in the treatment of carbuncle which is seldom employed, yet is of great importance, namely, letting the patient have very free air. The general idea that carbuncles are very dangerous diseases has commonly led to the patients being entirely confined to bed and kept shut-up in their rooms. This is an unnecessary care; as I learned from a patient who refused to comply with injunctions—a patient with a large carbuncle on the back of his head who would not keep in his bedroom. He had been accustomed to an active life, and after seventy or eighty years of that custom he was quite indisposed to remain in his room. So with his carbuncle he daily came down stairs, changing

his room and moving about the house as well as the pain and weakness would allow him. No carbuncle could go on better ; all the stages were passed through without any risk or trouble, and it healed with unusual speed.

After that I had a yet more striking case. A lady came to London 'for the season,' as she called it ; and she had not been here more than a week or ten days before a carbuncle came on the back of her head, just under her hair. It would have been a great vexation to her to give up all her amusements ; and so, as she did not mind the pain, she would go out. And it was then that, for the first time and the last, I saw any value in a 'chignon.' She dressed her carbuncle under her chignon, and she went to the parks, to the theatre, and to dances unharmed, and with her carbuncle quite unseen, and no trouble whatever followed. It healed after the ordinary fashion in about the ordinary time. But, indeed, you may see cases of this description on a much larger scale if you watch the carbuncles that come to us in the out-patients' room. There we often see them of considerable size, and they do as well among the out-patients as among the in-patients ; and yet these out-patients are freely in the air all day, and many of them continue at their work. So you may set it down as one point to be attended to in the management of carbuncles that patients should not be confined to their rooms. They should at least have change of air in their own houses ; and, unless they are very weak, they should not avoid exposure to the fresh open air.

Treating your cases of carbuncle upon this plan, I believe you will find that the great majority will pass



through their course well. I cannot tell you what the ordinary proportion of deaths from carbuncle is ; but I know that carbuncles are commonly looked-upon in the profession as dangerous things, and a large carbuncle on the back of the head is considered to be fraught with risk to the patient's life. But that is very far from being the case in my experience. Remembering, so far as I can, or rather guessing at the number of carbuncles I have had to treat, I should say that there is no other disease of the same extent and general severity which is attended with so little risk to life. During twenty years of hospital- and private-practice, I cannot have treated less than 200 carbuncles ; and of these 200, four have died, giving a mortality, at a fair guess, of only two per cent.—a mortality which is less than that of some of the minor operations of surgery, and really less than that of any disease of equal severity that you can name. Of those four deaths, one occurred in a patient aged seventy-eight, who died of erysipelas after the carbuncle had nearly healed. Another patient was a gentleman fifty-five years of age, who died of chronic pyæmia. The third was a gentleman aged fifty, who died with acute pyæmia. And the fourth was a patient of about fifty years of age, who died rapidly exhausted. The first three deaths were from causes which may almost be called accidental ; for so we call them when occurring after an operation, and it would be unreasonable to suppose that any other method of treatment would have averted the consequences. The other died, possibly, on account of the deficient stimulation ; for he was a man who had lived freely, and took during treatment less than he had

been accustomed to have. The main point, however, to which I wish to direct your attention, is that the mortality may be as little as two per cent. I cannot doubt that the mortality was considerably larger when carbuncles were severely cut; for the severe cutting meant often severe bleeding, and was attended with all the consequences of large wounds. Thus, though I do not know the exact proportion, I believe that the general reputation of the danger of carbuncle was well founded, and that among the reasons for the diminished mortality of carbuncles may be set-down as chief, the more frequent avoidance of the custom of cutting them.

Speaking of the mortality of carbuncle, however, I must remind you that I am not speaking of a disease which sometimes passes under the name of carbuncle—the carbuncular inflammation of the lip which sometimes occurs in young persons: a disease which you may not have seen, and may pass many years without seeing. It was described by a former house-surgeon of this hospital, Mr. Harvey Ludlow,<sup>1</sup> as malignant pustule of the lip. Dr. Budd, of Bristol, has also so described it. Commencing at one spot, inflammation of the whole lip follows and spreads to the face, and then disease of the lymphatics ensues, with pyæmia as its consequence. It is a disease so unlike carbuncle that it ought not to be known under the same name; but it seems to me not to agree with the accounts given of malignant pustule abroad, and I have seen no other disease like it in England. It attacks especially young persons from fifteen to twenty-

<sup>1</sup> Trans. of Abernethian Society, and 'Med. Times and Gaz.,' Sept. 1852. See also a valuable paper on this subject by Mr. Thomas Smith, 'Clin. Soc. Trans.,' vol. iii.

one; and of fifteen cases that I have seen, only one recovered. This disease is not ordinary carbuncle, nor is its mortality to be counted in estimating the mortality from carbuncle. Ordinary carbuncle on the lip and face has none of those special characters, and is not more fatal in those situations than in any other.

My experience of the treatment of carbuncles in the last six years, has not led me to deviate from the plan advised in the foregoing lecture. I have seen a much larger proportion of fatal cases; but this is because, since I retired from the hospital, and as I have grown older, I have more rarely been consulted for carbuncles not deemed to be dangerous. And of the seven or eight fatal cases that have occurred, none has been without serious complication, such as advanced diabetes, fatty heart, bronchitis or acute pyæmia. So many deaths may justify a larger estimate of the mortality of carbuncle than the 'fair guess' which I made in the lecture: but they still leave it right to say that the mortality of carbuncle not complicated with serious disease should be less than that of any other disease of the same extent and general severity.

Later experience has made me nearly sure that the disease of the lip, mentioned in the last paragraph of the lecture, is true carbuncle which, because of some peculiarity in the textures of the lip, especially in young persons, is peculiarly apt to infect the blood and generate acute pyæmia. The unlikeness to carbuncle is only in the extremely greater frequency of pyæmia, and this unlikeness did not exist in a lad of eighteen, whom I saw with an ordinary carbuncle in the middle of his back, and in whom acute and rapidly fatal pyæmia ensued with exactly the same phenomena as I have now so many as twenty times seen in cases of carbuncle of the lip.

### SEXUAL HYPOCHONDRIASIS.

---

THE cases which I advise you to include under this name are those of male patients who regard trivial maladies, or even some of the natural events, in their sexual organs with the unreasonable dread or gloom and watchfulness which are characteristic of hypochondriasis. They are such as are accused or accuse themselves of spermatorrhœa, or of the other maladies of the sexual organs which swindling advertisers profess to cure.

You will find that men with healthy nervous systems, or who are careless, or sensible, or well-informed, will very rarely consult you on any of the so-called functional diseases of their sexual organs ; when they have them they endure them without harm or distress. Of those who will consult you, some are merely ignorant of what the natural actions of these organs are or may be ; some have brains too emotional, or spinal marrows too irritable, hurrying the secretion of seminal fluids and disordering their emission ; but those are most numerous whose minds, in reference to their sexual organs, are unsound. The unsoundness may not be sufficient to be called insanity : let it be called hypochondriasis ; and if you will study its general characters with the help of the best essays on the

subject, and best of all with the essay on Hypochondriasis by Sir William Gull and Dr. Anstie in Reynolds's System of Medicine, I may limit myself to speaking of the conditions of the sexual organs which are associated with disorders of the nervous system.

Of these I will speak rather fully ; but first, let me ask you to note the ignorance concerning sexual matters of which I just now spoke : for it is the source of a kind of hypochondriasis in some who, in mere ignorance, imagine miseries for themselves or are made miserable by others' falsehoods.

Ignorance about sexual affairs seems to be a notable characteristic of the more civilised part of the human race. Brutes, even those most changed by our domestication, copulate as naturally as they eat or defæcate. As the instinct for food leads them to eat, and carries with it all the knowledge necessary for the choice and taking of their food, so the sexual instinct has with it the knowledge how to copulate. It is the same, I believe, with the least civilised of our race ; but it is not so with the most civilised. It seems as if, in the course of generations, the transmission of intellectual powers gained by education had the effect of subduing or superseding those of instinct. How far up the grades of civilisation this change begins, I do not know ; but among ourselves it is certain that the method of copulating needs to be taught, and that they to whom it is not taught remain quite ignorant about it ; as ignorant as, I suppose, we should be of what to eat and drink if we were not taught. Of course very few, I mean very few of our sex, grow-up without being taught, either by the talk of schoolfellows or by books or

other means ; but a few grow-up and even marry in complete ignorance ; and this ignorance, which is rare among men, is very common among well-educated women.

The fact is of much interest in relation both to the natural history of our race, and to the frequency of sexual disorders dependent on the mind or on the nervous system. For sexual desire arises and grows without the knowledge how to satisfy it ; and in the learning how to satisfy it errors and fancies and things half understood get into the mind, and become to some men sources of misery and fright, and to some the subjects of hypochondriac gloom and watchfulness.

Among the merely ignorant you will find that, if they be otherwise sensible people, they need only to be told the truth concerning the disorders, real or imaginary, for which they consult you. Knowledge will cure them. But if they be or have become hypochondriac they will not receive, or will not retain, knowledge ; their erroneous beliefs will be to their minds stronger than your truths.

Of these I shall have to speak again in reference to all the sexual disturbances of which they complain.

Now the complaint of some is that semen passes with their urine, and that all their 'strength is going from them ;' and of this they give various symptoms, which, if they be at all true are due to something else. For the general notion of semen passing with the urine is erroneous and is usually derived from dishonest advertisers, who make it one of the grounds on which they rob their patients.

There is, indeed, a very rare case in which after gonorrhœa or other disease affecting a seminal vesicle, a part of it seems to become sacculated and may be so filled that mucus, and perhaps seminal fluid, may be pressed from it in the last lifting efforts of the muscles for expelling urine. And this out-pressing may be attended with sensations of discomfort, shuddering and tremors; but it is harmless. In the ordinary cases, and those of hypochondriasis, the supposed semen is mucus from the bladder which, when it exists in its natural small quantity in the urine, appears as a pale dim cloud at the bottom of the vessel, sometimes sparkling a little when light passes through it.

As to semen passing with the urine, I am nearly certain that it never does so unless when an emission of semen, in whatever way provoked, has lately taken place or where there has been disease of a seminal vesicle. In the former case some semen, remaining on the walls of the urethra or possibly having passed into the bladder, is washed-out with the next stream of urine, and may be found in it with the microscope. I once examined, for many days in succession, the urine of a patient who was persuaded that he passed semen with it; and semen could always be found when he had had a nocturnal emission, but never on any other occasion. A former colleague of mine assured me that he had frequently observed the same thing after copulation. And this, I believe, is the whole truth concerning semen passing with urine; whatever may chance to be left in the urethra after an emission is washed-out. But that which frightens the ignorant and the hypochondriacal is not even this; it is mucus of

the urinary passages, either quite healthy or in some trivial manner changed. This form of what is called spermatorrhœa, therefore, should be treated by instruction, which the merely ignorant will receive, and the hypochondriacal, very probably, will not.

Not much unlike this misunderstanding about vesical mucus is another in which some people, chiefly middle-aged and elderly with diminishing sexual powers, make themselves miserable. They find in their urine little flakes or threads of floating mucus, which, they say, are always washed out of the urethra at the beginning of the urine-stream, especially in the morning. They watch these with the greatest anxiety; and send them to you on bits of paper or of glass, begging you to examine them very carefully. I believe that they are bits of prostatic mucus, secreted in the night and washed-out with the morning-urine. But, whatever they may be, they are not of the least importance. You may find them passed by men who neither know nor care anything about them and whom they never harm; and even hypochondriacs go on, month after month, passing them and yet suffering nothing but their mental misery.

There is really nothing more serious in these flakes of mucus, than there is in the mucus for which some men, or even these same men, blow their noses oftener than others; or in the secretion which makes some people's eyelids stick together in the morning. It seems strange that mucus from one place should make people so much unhappier than mucus from another. But this is the usual character of hypochondriasis; it is as if a morbid



element of the mind could localise itself, as a morbid element of the blood may, in some 'place of election.'<sup>1</sup>

Again, some or the same persons are unhappy because, as they say, they pass semen during defæcation. But these, again, do nothing more than healthy men often do. When the rectum is emptied with much muscular force, and especially when large solid fæces are being passed the contents of the vesiculæ seminales and of the prostatic ducts, and, I dare say, of Cowper's and other mucous glands besides, are apt to be pressed-out; and hence it is not rare for healthy men to find mucus, or some fluid like it, escaping from the urethra during defæcation attended with straining. And, when the vesiculæ seminales are filled with semen, as they may be when it is long since an emission took place, or when, in an emission they are not emptied, their fluid together with semen may be pressed from the urethra with something even of the sensation of emission. All these things happen to healthy people without harm: they are not unnatural; certainly they are not effects or signs of disease: and when anyone comes to you complaining of them, it is his mind, not his sexual organs, that requires treatment.

Another subject of gloom and alarm to some is that, during sexual excitement, and, as they suppose, worse still, when they wake in the morning, they find a clear colourless fluid flowing from the urethra or easily pressed from it. Here, again, the complaint is of that which is

<sup>1</sup> Prostatorrhœa, prostatic gleet, or whatever else the disease may be called which is attended with constant excessive secretion from the prostate, or vesiculæ, or both, is not here referred to. This is a real disease and very troublesome, whether associated or not with spinal irritation or with hypochondriasis.

natural, and it would be quite as just if directed against tears during grief. The urethra naturally secretes mucus during sexual excitement; it secretes more or less in different persons, but some, I believe, in all; and as for the morning-secretion, it is due either to some sexual excitement during sleep, forgotten before waking, or to the general condition of turgescence or erection of the sexual organs which, in most healthy persons, exists during sleep or some part of it. In no case is this clear urethral mucus a sign or consequence of disease, unless indeed when an excess of it is a residue of gonorrhœa. It is, I think, most abundant and most quickly formed in those whose sexual organs are more irritable than potent; but this is the worst that can be said of it; and even in these it is not the sexual organs, but some part of the nervous system, the brain or the spinal marrow, that is in the wrong. In no case does the secretion deserve to be called or treated as a disease.

Again, there are some to whom, whether through ignorance, or misguidance, or hypochondriasis, a varicocele is a source of misery and dismay. They look on it as a fore-runner of impotence, and of wasting testicles, and I know not what besides. All such fears are groundless. Varicocele is troublesome because of the sense of weight and aching which sometimes, though far from always, attends it, and which is sometimes much increased by long standing or walking. In some cases, too, the dilated veins, like varicose veins in the leg, are apt to become inflamed or very sensitive. But this, I believe, is the widest limit of the harm that varicocele ever does. I do not believe that it ever produced wasting of a testicle or

impotence or any such thing. It is common enough to find varicocele in quite healthy men who, being sufficiently careless or sensible to make light of it, suffer no harm either mental or bodily. Some who have it while they are single and chaste are cured by marriage ; and in some it ceases to cause even its slight occasional aching when they begin to grow old. In short, the cases in which varicocele is more than a trivial affair are very few ; and in these few its mischiefs are not such as the sexual hypochondriacs imagine. They are, indeed, altogether distinct from the functions of the sexual organs ; being such achings and wearing pains as may be felt in varicose veins in the legs. These may be sufficient to disqualify a man for military service ; but they are not sexually important ; and, in those who believe they are, it is a mental error, not a bodily one, that needs cure.

I can very positively give you the same assurance about those who will consult you on several other things ; such as the scrotum being too pendulous, or the penis being cold or shrivelled, or the testicles too small when in fact they are of ordinary size.

But now I must speak of something which may, in its greater degrees, have the character of real if not serious disease ; I mean the nocturnal and other involuntary emissions of semen. I say, in its greater degrees ; for, in the lesser, the emissions are natural, and it is a sign of ignorance or hypochondriasis if the mind dwells sadly on them. And, I may add that of all the cases of such emissions on which you will be consulted, not more than one in fifty will deserve serious consideration unless for the state of the patient's mind and nervous system.

To those who lead chaste lives, and to some of those who do not, nocturnal emissions of semen are natural occurrences. I never met with a chaste healthy man, of whom I had occasion to ask about them, who did not say that he had them sometimes. Their frequency is in different men very various: varying according to many things, such as climate, diet, social habits, and, above all, I think, according to the degree in which the minds of those who do not have sexual intercourse are directed to sexual matters. Thus nocturnal emissions may vary from once or twice in a week, to once in two or three months, or, at times of unusual exhaustion or excitement, they may exceed those rates or may fall short of them: but in both sets of cases and in all the intermediate frequencies they are consistent with good health. Men who are careless, or sufficiently well-informed, say nothing about them, and suffer no harm. When, therefore, any person with a sound nervous system, and having nocturnal emissions within such limits as I have mentioned, consults you about them, it is best to tell him that they are natural occurrences which may be left to their own course, and you may add that they cannot be put an end to and ought not to be if they could.

But the case is different in men with over-sensitive nervous systems, or in whom one may believe that at least that part of the spinal marrow which is in nearest relation with the sexual organs is over-irritable. In this condition the emission of semen is apt to take place with much less than the normal amount of excitement. Hence it may take place too quickly during or even before sexual intercourse; sometimes without erection and

almost without sensation ; sometimes from the mere friction of the dress in riding or walking, or during sensual thoughts ; and frequently at night with or without sensual dreams. This if anything might be called spermatorrhœa ; but even this is not properly a disease of the sexual organs, it is a disease or a disorder of the nervous system, and may most probably be referred, as I have said, to a too irritable condition of the spinal marrow or of some portion of it. For, with the too frequent and too quick emissions there are always other signs of nervous disorder which, though commonly regarded as due to the emissions, are really not so.

The chief of these signs are aching of the back and lower limbs, especially after emissions ; readiness to be fatigued, and in all fatigue pain ; weary limbs and spines ; indisposition or seeming incapacity for mental exercise ; defect of will and of power of attention ; often restlessness at night and unrefreshing sleep ; hysteric fits or feelings. Many patients, too, are troubled with palpitation ; many with constipation ; some with excess of lithates ; some with oxalates in their urine ; not a few with irritable bladder ; some with various nervous indigestions ; some with coldness of feet and hands.

Now, neither these nor any other of the signs commonly enumerated with them are characteristic of disease of sexual organs : they are signs of a central nervous disorder ; they are the very same as are found in many cases of ' spinal irritation ' and of so-called hysteria in which there is no indication of any sexual disturbance, but, if anything, some disturbance at the heart, or the bladder, or a joint or some other part. Moreover, these

nervous signs bear no proportion to the emissions, and, though commonly aggravated by them, are only so aggravated as the same symptoms are in nervous women at the menstrual period, or by any other sudden or considerable expenditure of nervous power.<sup>1</sup>

The utter prostration which women, and some men too, with spinal irritation complain of after walking is the counterpart of that which is complained of by these nervous patients after their emissions; and I have heard patients complain of it even during digestion, or after their daily defæcations, though these were with neither pain nor straining. It is true that there are few if any of these cases worse than those in which the nervous disorder, which I hold to be the primary affection, is directed on the sexual organs, or has been wilfully directed on them by frequent masturbation or irregular sexual practices; but, in not a few of those who lay the fault of their nervous troubles on their seminal emissions, the sexual organs act healthily. One of the worst cases that I have ever seen was in a married man who, because of back-ache and many more of the sensations I have enumerated, lay, like many hysterical women, constantly on his back, travelled on his couch, or at most moved slowly on crutches. He had occasional sexual intercourse; and his back was always more painful after it, and he felt miserable and exhausted and prostrate; but so he did after a walk or any other unusual expenditure of nerve-

<sup>1</sup> This lecture was given before those on Nervous Mimicry; but the points of likeness between the subjects of sexual hypochondriasis and those with disorderly nervous systems to whom those lectures relate are very numerous and clear. Especially, there is likeness between the men with this disease and the women who have uterine disturbance: and the difference in their mental states agrees with the general fact that hypochondriasis is much commoner in men than in women.

force. In another, a man of 30, who lay helpless and will-less, weak-eyed and utterly enfeebled, a very type of the supposed victims of spermatorrhœa, nocturnal emissions occurred very rarely. They were followed by increase of back-ache and other miseries, but in no greater degree than was every unusual mental or bodily effort : and this patient had never had sexual intercourse, had masturbated only twice or three times in his life, and had had very few nocturnal emissions.

Now, in some of these cases of rapid and frequent emissions, the consequence, as I want you to believe, and not the cause, of nervous disorder, there is no mental error : the patients are not more than reasonably distressed by the inconvenience they suffer. But in many cases, hypochondriasis is associated with the rest of the disorder, and increases immeasurably both the misery and the difficulty of cure. The patients are full of apprehensions, unable to divert their minds from their sexual functions, constantly watchful of their sensations and making them constantly more intense. And further mischief follows all this : for the direction of the mind to the sexual organs makes both them and the parts of the nervous system associated with them more and more irritable ; it increases the secretion of seminal fluid and hurries its discharge. The mind thus continually multiplies the sources of its own misery.

Few conditions are more pitiable than those of hypochondriacs who thus suffer, and few more difficult to cure. Your chance of doing good will depend mainly on the skill with which you can influence the patient's mind : for of the components of his case the mental

condition is the worst, the irritable spinal marrow the next, the state of the sexual organs the last, in order of gravity. Not that local treatment is to be neglected, for if the unnatural sensibility of the sexual organs can be diminished the mind may be less often distressed by emissions.

To this end, cold enemata are sometimes useful, and sometimes galvanism; and in some cases the passing of bougies or catheters, with or without caustic for the prostatic part of the urethra. But all these things often fail; and, as for the last, I have seen so many cases in which it has been mischievous that I am sure it should be used seldom and never without more than ordinary skill. But of its being sometimes useful under these conditions I cannot doubt.

For the nervous state you must use, as for any other cases of 'spinal irritation' iron, good food, and good air, and the correctives of any coincident disorder of the digestive or other organs; and you must persuade to a robust, sensible and fully occupied habit of life, with much sleep and the best self-control that can be obtained.

But do what you may the hypochondriasis will, in the worst cases, remain; and if, even, the sexual trouble should cease, the mental wrong will continue, only changing its subject, or dwelling on the past as gloomily as it used to dwell on what was present. And in some the hypochondriasis will gradually drift into a more evident insanity.

Now, when one of these patients becomes insane the blame is commonly laid on his sexual organs, or on his having practised masturbation. Before I end, I will tell



you the wrong of this : but I must first speak of another of the conditions on which hypochondriacs think erroneously ; namely, impotence. This impotence, or even greatly reduced sexual power, is so distressing even to those who may be called reasonable men that you may sometimes be ready to ascribe to mental disorder what is a material disease or defect. Your study, therefore, in each case, must be to ascertain whether the impotence complete or incomplete be real, or due to ignorance or some nervous disorder ; or whether there be no impotence at all but only an hypochondriacal fear or false persuasion of it. Now of the real cases of impotence I can only enumerate the chief forms. It may be due to disease or wasting of the testicles, but this, unless the disease or wasting be extreme, is very rare. (Observe, I do not speak of sterility which means only inability to beget children, but of impotence which means inability to copulate.) It may follow abscess or other acute disease of the prostate. Very rarely and inexplicably, it is sometimes a sequence of fever ; sometimes of injuries of the brain or spinal cord. It is found during exhaustion from excessive and anxious mental work, with ‘jaded brains ;’ and during some forms of dyspepsia, with oxaluria : but in these cases it is only temporary. It is not rare with advanced diabetes ; and is common with several forms of degeneracy of the spinal cord. In old age it is happily not rare. At any age it may begin and continue very long in those who have been excessive in either sexual intercourse or masturbation. Nay, all sexual power and desire may cease in apparently healthy men, and without apparent cause, at unusually early ages : in

cases that I have known, as early as thirty-five or forty even in those who never masturbated and very rarely had sexual intercourse.

But although the physical causes of impotence and great decrease of sexual power may be thus numerous, yet from all these causes together the cases are less frequent than those due to nervous disorder or to mental defects ; and the impotence which is complained of or dreaded without any real reason is more common still. The mental and nervous defects which may make a man impotent are various in different persons ; some hindering or interrupting erection ; some preventing emission ; and they are as various in degree ; some are only occasional, a few are habitual or scarcely constant. They may be cured, if at all, by means addressed to the mind or to the nervous system ; but they are all hard to cure ; as hard as it is to cure stammering, whether in speech or any other function, or to cure any of the disorders of those functions for the perfection of which the will must act in exact harmony with parts not under its direct control.

I have enumerated all these causes of impotence to help you to guard against the risk of treating as a mere hypochondriac any one who really has this malady from either mental or physical causes. As a rule the distinction is not difficult. They who complain of impotence alone are distressed about it, and very anxious for its cure ; more so than to the cool judgment of anybody else may seem reasonable ; but here is the boundary of their unhappiness ; they do not tell or prophesy other miseries, and do not give up their minds to their diseases.

Moreover, they who are impotent, or nearly so, from other than mental or nervous states have a loss of sexual desire as well as of power.

The sexual hypochondriac may or may not be mentally impotent ; but in the great majority of cases is not. Most of those who consult you will tell you that though they have sexual desire yet are impotent, or are afraid they are, and are therefore afraid to marry, because they have some of the trivial things I have been speaking of ; occasional nocturnal emissions, or urethral mucus or varicocele or something not more important. Now if a man has sexual organs, including the prostate, not manifestly diseased or wasted, and has erections and occasional nocturnal emissions, and any sexual desire, you may be sure that he is not impotent unless he has very clear facts to prove that he is. The statements that hypochondriacs make to show that they are, or are becoming, impotent are usually evidences that they are not. And what is true of hypochondriacs is equally true of those who are frightened by mere ignorance of sexual matters, or who have been fraudulently misinformed.

You may observe that, in speaking of sexual hypochondriasis, I have spoken of three different classes of men or boys in whom functional disorders of the sexual organs may need to be treated. There are, first, the merely ignorant or misinformed ; next, those with over-sensitive or too irritable nervous systems ; and lastly, the hypochondriacs. The conditions respectively characteristic of each may be mingled in various degrees, but they are worth keeping in mind as guides to treatment.

The patients of the second class alone need medicinal help, and what this may be I said just now : the others must be mentally helped.

With careful and very positive teaching you will cure the ignorant, and do good to all but those whose hypochondriasis is near to complete insanity. But on some subjects of your teaching you will have to be very clear as to matters of fact ; especially, for instance, as to the practice of masturbation, to which many of your patients will ascribe their chief distresses.

Now, I believe you may teach positively that masturbation does neither more nor less harm than sexual intercourse practised with the same frequency in the same conditions of general health and age and circumstance. Practised frequently by the very young, that is, at any time before or at the beginning of puberty, masturbation is very likely to produce exhaustion, effeminacy, over-sensitiveness and nervousness ; just as equally frequent copulation at the same age would probably produce them. Or, practised every day, or many times in one day, at any age, either masturbation or copulation is likely to produce similar mischiefs or greater. And the mischiefs are especially likely or nearly sure to happen, and to be greatest, if the excesses are practised by those who, by inheritance or circumstances, are liable to any nervous disease,—to ‘spinal irritation,’ epilepsy, insanity, or any other. But the mischiefs are due to the quantity, not to the method, of the excesses ; and the quantity is to be estimated in relation to age and the power of the nervous system. I have seen as numerous and as great evils consequent on excessive sexual intercourse as on ex-

cessive masturbation : but I have not seen or heard anything to make me believe that occasional masturbation has any other effects on one who practises it than has occasional sexual intercourse, nor anything justifying the dread with which sexual hypochondriacs regard the having occasionally practised it. I wish that I could say something worse of so nasty a practice ; an uncleanness, a filthiness forbidden by God, an unmanliness despised by men.

Another point on which you may have to teach is that of dreams associated with nocturnal seminal emissions. Men of scrupulous conscience are deeply distressed with the thought that these emissions are due to sexual feelings which they ought to be able to suppress even in their dreams ; they look on them as tokens of a prevalent impurity of mind which they must cure. Well, you may tell them that, according to all we know of dreams, it is not the dream that excites the emission, but the natural and involuntary erection and emission that determine the dream, and that over the erection and emission that may occur in sleep or on just waking it is impossible that any man should exercise direct control ; he might as well try to control while asleep the tone of his snoring or the posture of his limbs. Some indirect control a man may have on all these things, and on the sexual part of them it may be held that the more the mind while awake is occupied in other than sexual matters, and so occupied that it is not even necessary to use any effort for the suppression or exclusion of sexual thoughts, the less will be the secretion of semen and the sensibility of the sexual organs, and therefore the less

frequent the excitements and emissions during sleep. But, in some persons, and, as I believe, in the great majority of those who are chaste, nocturnal emissions and the associated unclean dreams are simply irrepressible: they are due to a natural secretion of semen which we have no means of suppressing and no right to suppress. Therefore, to men with healthy nervous systems you must tell that their nocturnal emissions are evidences of health rather than of disease. And to those in whom too frequent emissions are connected with a too irritable state of the spinal marrow, you may tell that they cannot and ought not to be wholly suppressed; but that they may be remedied by marriage, and may, very probably, be diminished by means that will improve the condition of the spinal marrow.

To all alike you may try to teach a judicious carelessness about these things: a state of mind which would be an inestimable blessing to many besides these sexual hypochondriacs.

Many of your patients will ask you about sexual intercourse and some will expect you to prescribe fornication. I would just as soon prescribe theft or lying or anything else that God has forbidden. If men will practise fornication or uncleanness it must be of their own choice and on their sole responsibility. We are not to advise that which is morally wrong, even if we have some reason to think that a patient's health would be better for the wrong-doing. But in the cases before us, and I can imagine none in which I should think differently, there is not ground enough for so much as raising a question about wrong-doing. Chastity does no harm to mind or

body ; its discipline is excellent : marriage can be safely waited for ; and among the many nervous and hypochondriacal patients who have talked to me about fornication, I have never heard one say that he was better or happier after it ; several have said that they were worse : and many, having failed, have been made much worse.<sup>1</sup>

The mental treatment which I have thus suggested will be in many cases sufficient. It will be more or less useful according to the degree of good sense possessed by the patient. A sensible man, who has been only ignorant on sexual subjects, who can understand evidence and is ready to believe those who are most likely to tell him what is true, will be cured when the truth is told. At the opposite extreme, the worst of the hypochondriacs will be almost incapable of cure : they will believe nothing hopeful ; they will be dull to all common-sense statements ; many of them will prefer to be guided by rogues rather than by honest men.

Between these extremes you will have various degrees of success ; and in the vast majority of cases time does good. Some few patients, whose hypochondriasis is a form of inherited insanity, become plainly insane ; some, though they marry and have duly regulated sexual intercourse, and may cease to have involuntary emissions, yet retain their other nervous symptoms, and continue hypochondriacal ; but the vast majority get well. Some fall in love, marry, and are cured ; some getting into the

<sup>1</sup> Professor Humphry very justly points-out that the functions of the sexual organs, and we may include with them the related parts of the nervous system, 'may be suspended for a long period, possibly for life ; and yet they may be sound and capable of being roused into activity.' The same can scarcely be said of any other parts. *Holmes's System of Surgery*, vol. v. p. 151.

weighty responsibilities of life, have things to think-about more important than their sexual organs, and in all, as they grow older, the spinal marrow becomes less irritable, so that the emissions, if they have been annoyed with them, become less frequent and are attended with less feeling of exhaustion.

Now, let me end by speaking, as I said I would, about the statements that miseries beyond any that I have told of are frequent consequences of the so-called functional sexual diseases. Epilepsy, all forms of paralysis, wasting palsies, amaurosis, impotence, insanity, idiotcy, emaciation, disease of the heart, phthisis, and whatever else may frighten the timid, or attract the morbid fear of the hypochondriac, are advertised by swindlers as the sure consequences of sexual disorders, unless they be averted by some secret treatment. And these men live on the insane and the foolish whom they can attract. They would do less harm, and be less encouraged in their frauds, if they could not refer to the works of some members of our own profession for opinions justifying what they pretend to be their own.

First among these false teachers is Lallemand. His picture of Spermatorrhœa, in its complete form, is a description of something which I believe to be unknown among Englishmen. It may be that there is no such disease in France: a wild imagination may have suggested it: but whether it can be found in France or not, I believe you will never see it here. I have not yet seen such a case as any of the worse cases which Lallemand describes, nor any which would justify the general tone of his descriptions. To many others with as good oppor-



tunities as myself for seeing rare and severe cases they are as completely unknown : and I observe that English writers on the subject, when they wish to tell the worst things to which spermatorrhœa can be said to lead, speak, not from their own observations, but from what they believe to have been Lallemand's.

But setting-aside his account, you will find, even among honest English writers, more serious troubles assigned to sexual disorders than I think they can justly be charged with.

In speaking of the symptoms of irritable spinal marrow associated with frequent seminal emissions, I indicated the fallacy of the argument on which it is held that these symptoms are the consequence of the emissions. The emissions I said and (I hope) showed, are the consequences not the cause of the disorders of the nervous system ; they may aggravate the condition from which themselves arise, but it is only in this sense that any measure of the disease can be ascribed to them.

Nearly the same may be said concerning the other supposed consequences of sexual disorder and sexual excess of whatever kind. Let us take, for instance, insanity ; and what is said of it might be said of epilepsy and the other horrors assigned as consequences of spermatorrhœa and masturbation.

Masturbation and sexual excesses are commonly assigned as the cause of insanity in a considerable proportion of the insane inmates of asylums. But, I think you will find that no estimate is attempted of the probability that they who are said to have been thus made insane would have become insane without this or any other

excess. No doubt, in any man who inherits a disposition to insanity, excess of any kind, whether in sexual things, or in drinking, gambling, or any other, will hasten or determine the advent of insanity : but excesses do not make men insane who have naturally healthy brains. Think of the number of habitual drunkards whom we see dying here : the poor wretches are not mad, unless their drunkenness be a sign of it, an effect not a cause of insanity. Or, think of the number of sensualists in all classes of society, who, to the last degree and their latest life, stimulate and indulge their sexual desires in any way they can. These do not become insane in any larger proportion than do gamblers, or over-active politicians, or even the vehement students of science. To determine the influence of excesses in producing insanity you must count not only the insane but the sane who have committed excesses and retained their mental power.

And, even among the insane there are many of whom it would be truer to say that they masturbated because they were insane, than that they became insane because they masturbated. It is the same as with drunkenness. Habitual and paroxysmal drunkenness seem to me more frequently the consequence of insanity than insanity is of them. Certainly, the most marked cases are in those who are members of families in which insanity and other maladies of nervous centres are prevalent, and in those who are on other and previous grounds known to be not wholly sane or of average mind. Given a predisposition to insanity, and, no doubt, any of these exciting or, as they may better be called, exhausting causes may induce it ; may hasten it or determine its occurrence.

And the greater the disposition, the less need be the exhaustion that will suffice: while in those in whom there is only the least, if any, disposition to insanity, nothing less than the utterest exhaustion from excess may suffice to produce it, if even this may. The drunkards and sensualists who live and die sane are too many to let us speak of hard drink, or masturbation, or sexual excesses as causes of insanity, unless under many reserves and conditions.

And what is true in respect of insanity is true in respect of other assigned consequences of sexual disorders. These disorders are effectual exciting causes of only such diseases as the patients are prone to; and the proneness or predisposition is much nearer to the essence of the disease than is the exciting cause.

## GOUTY PHLEBITIS.

---

I HAVE met with certain cases of phlebitis, the like of which I cannot find on record. I propose, therefore, to give some account of them. They are all examples of the so-called adhesive phlebitis; the disease in which inflammation of the coats of a vein is associated with clotting of blood in its canal, but not with suppuration or pyæmia. Of many of them, indeed, I cannot tell, any more than of certain other forms of phlebitis, whether the inflammation or the clotting were the first event, nor, therefore, whether they are to be referred more properly to phlebitis or to thrombosis. But I give the former name to them all because it is in most common use amongst us; and is probably correct for at least one part or stage of every case.

Many of the varieties of adhesive phlebitis have been so well described, that I need only refer to them for the sake of comparison.<sup>1</sup> Such are—

<sup>1</sup> Such descriptions may be found in, or by means of, Callender, Art. 'Pyæmia;' Holmes's Syst. of Surgery, vol. i., and 'Diseases of Veins,' in the same, vol. iii.; S. Weber, Handbuch der Chirurgie, von v. Pitha u. Billroth, B. iii. Abth.; Humphry, 'On the Coagulation of the Blood in the Venous System during Life, 1859;' Mackenzie, Pathol. and Treatment of Phlegmasia Dolens, 1862; Henry Lee, Diseases of the Veins, 1866; Virchow, Cellular Pathology; by Chance, lect. x. 1860; Rokitansky, Pathologische Anatomie, B. iii.

1. The traumatic ; including those due to distension.
2. Those occurring in exhaustion during, or after, either acute or chronic disease.
3. Those due to extension of inflammation or of blood-clotting from ulcers, morbid growths, or gangrenous or acutely inflamed parts.
4. Those of the so-called idiopathic, or rheumatic form which Dr. Mackenzie very fully described ; but among which I am convinced that a closer study would lead to the distinction of different forms associated with as many differences of constitutional affections.
5. The pyæmial.
6. The puerperal ; among which it is probable that examples of all kinds, only modified by the puerperal state, are grouped.

Any of these forms of phlebitis may be modified by occurring in veins already varicose ; but, passing by these, I proceed to the more proper subject of the paper.

*Gouty Phlebitis.*—The use of this name is, I believe, justified by the number of cases in which phlebitis is associated with ordinary gouty inflammation in the foot or joints, and occurs, with little or no evident provocation, in persons of marked gouty constitution or with gouty inheritance. In such cases the phlebitis may have no intrinsic characters by which to distinguish it ; yet, not rarely, it has peculiar marks, especially in its symmetry, apparent metastases, and frequent recurrences. Gouty phlebitis is far more frequent in the lower limbs than in any other part ; but it is not limited to the limb that is,

or has been, the seat of ordinary gout. It affects the superficial rather than the deep veins, and often occurs in patches, affecting (for example) on one day a short piece of a saphenous vein, and on the next day another separate piece of the same, or a corresponding piece of the opposite vein, or of a femoral vein. It shows herein an evident disposition towards being metastatic and symmetrical; characters which, I may remark, by the way, are strongly in favour of the belief that the essential and primary disease is not a coagulation of blood, but an inflammation of portions of the venous walls. The inflamed portions of vein usually feel hard or very firm; they are painful, aching, and very tender to the touch; such pain, indeed, often precedes the clearer signs of the phlebitis, and not rarely begins suddenly. The integuments over the affected veins (where they are superficial) are slightly thickened, and often marked with a dusky reddish flush. When superficial veins alone are affected there may be little œdema; but when venous trunks, as the femoral, the whole limb assumes the characteristics of complete venous obstruction. It becomes big, clumsy, featureless, heavy, and stiff; its skin is cool and may be pale, but more often it has a partial slight livid tint, which may be discerned by comparison with the other limb, and has mottlings from small cutaneous veins visibly distended. The limb thus enlarged feels œdematous all through; but firm, and tight-skinned, not yielding easily to pressure, and not pitting very deeply. By this state almost alone the disease must sometimes be recognised, for it may be very marked when only a small portion of vein is affected, and that (as

the lower part of the popliteal) so deeply seated as to be scarcely felt.

The constitutional disturbance associated with this condition is at most that of slight feverishness, or of an ordinary gouty attack, more or less acute in different cases. The effects of the disease I have never had an opportunity of examining by dissection; for in the only fatal case that I have seen, no autopsy was allowed. So far as one may judge of them, by after-events during life, the veins which may have been obstructed become, in some cases, pervious again; for in some instances the clearing-up of the œdema, and the restoration of the healthy condition of the limb, are complete. Yet the veins remain apparently very susceptible:—they ache exceedingly during fatigue or trivial illness or in changing weather; and I have known phlebitis excited by trivial causes in the same veins three or four times. In other instances, however (but I think they are rarer than in other forms of phlebitis), the obstruction of the veins appears complete, and permanent; and then, if they be trunk-veins, the limb remains permanently enlarged, cumbrous and heavy. Its superficial veins may, after some time, become varicose; and others may enlarge for collateral blood-streams; and I believe that an increased growth may take place in some of the tissues, especially the muscles of the limb.

Equally with the other forms of phlebitis, but as rarely as in any, that which occurs in gout may be fatal or very dangerous by embolism. I think that incomplete pulmonary embolism occurred in two cases in which—during gouty or rheumatic phlebitis—embarrassed

breathing and tremulous action of the heart almost suddenly ensued, and then slowly but completely subsided. In another case such embolism was fatal. A member of our profession, whom I saw with Dr. Ferguson and Mr. Morgan, was suffering with a severe and protracted attack of gout, such as he had had more than once before. During its course he had signs of phlebitis in scattered portions of the veins of the right thigh and leg (having previously had phlebitis three times from accidental causes). He was sufficiently recovered to be down-stairs, and engaged in writing, and thought himself convalescent; but having walked up-stairs to his bedroom, he fell down as if in a deep syncope, and remained nearly an hour, breathing very faintly, scarcely conscious, and with a feeble fluttering pulse. In a few hours he seemed quite recovered, and next day, and two days later, we could find nothing additionally wrong about him, except a fresh attack of similar phlebitis in the opposite thigh. We examined his chest, and detected only some slight crepitus and faint breathing about the root of one lung. All appeared going on well for three days, and he had no sign or warning of severe illness; but five or six days after the previous 'fit,' as he was sitting on the night-stool he fell forward, and rapidly died with a renewal of the signs of syncope and feeble breathing. No examination after death was made, but from the likeness of the manner of death to that which I have seen, in cases of ascertained embolism from systemic veins into the pulmonary artery, I cannot doubt what happened here. It is probable that in the first fit, the obstruction of the pulmonary artery was partial; or



that the clot was broken up, and its fragments dispersed; and that in the second, another clot remained blocked in the main artery, or was heaped on the adherent fragments of the previous clot.<sup>1</sup>

Gouty phlebitis is often hereditary. A patient, who had phlebitis in successive patches of both saphenous veins during an attack of acute gout, told me that his father and his maternal grandmother were gouty; and that, among his relatives on the maternal side, his mother, two uncles, grandmother, and two cousins, had inflammations of veins. And I can scarcely doubt that among the cases of phlebitis which are called 'common,' and are supposed to be referable to cold, or some wholly external cause, many might be traced to the gouty diathesis, however diluted and modified in its hereditary transmission.

In the management of cases of gouty phlebitis, there has never appeared to me any need of active treatment. Leeches do no good; mercury (I think) would do harm, if anything; purgatives seem unnecessary; colchicum has the same limited value as in other forms of gout, and appears useful in direct proportion to the severity of the symptoms. Alkaline drinks are certainly comfortable, and very probably useful; and certainly useful are diminution of food and of stimulants, and an increase of water-drinking. But more important than all these is rest, with the trunk and limbs level; for in this condition there are the best opportunities for the adhesion of the

<sup>1</sup> Mr. Prescott Hewett in 'Clin. Soc. Trans.' vol. vi., 1873, p. xxxvii. has given a lucid account of cases of gouty phlebitis, confirming and extending this description of it.

clot, and its union with the walls of the vein, and the least risk of its detachment. Among local applications none seem more useful than frequent fomentation and wrappings of the limbs with hot wet flannels.<sup>1</sup>

Among the rarest diseases is a phlebitis extending through large portions of branches of both the superior and inferior *venæ cavæ*. I have seen only one well-marked case of the kind.

A man, 42 years old, had been ill for three weeks, when he first came under my care, on October 19th, 1864. I found him restless, looking very distressed, breathing about thirty times in the minute, but not with any conscious difficulty, lying on his right side across his bed. He had pain, and difficulty in moving either arm or leg (especially the latter). Both arms were swollen, and œdematous; the hands quite bloated; and both legs, especially the left below the knee. The cephalic vein to the shoulder, and several other subcutaneous veins of the arm felt like hard, closely beaded cords; and had dusky or ruddy marks over them; but they were scarcely tender. On the legs all the saphenous veins felt similarly hard, and over some branches of the right saphena in the thigh there were diffuse branching red bands and blotches, very tender to the touch, and painful in movements of the limbs. His tongue was large, thinly furred, dry along the middle, and at the tip: he was thirsty and his mouth was all clammy; he hated food,

<sup>1</sup> Lately (1874) I have seen another case of fatal embolism during convalescence after gouty phlebitis, and I have seen and heard of other cases of embarrassed breathing. See, too, an admirable paper by Dr. Tuckwell in the last vol. (10th) of the S. Bartholomew's Hosp. Reports.

but was no longer sick. His pulse was 120, small, and rather weak; his breathing as above noted. The heart's sounds were natural; so were the percussion and respiratory sounds over all the front of the chest. Over the lower half of the back of the right lung percussion was all dull, and there was a moderately fine crepitation audible to the same extent. The same kind of crepitation was in the lower and posterior third of the left lung; but here there was a less degree of dulness. The skin was moist; at the head rather hot, and perspiring, at the hands cool. The bowels appeared disposed to act regularly, but were confined by the opiates he took. His mind was quite clear. All the signs of pneumonia with increase of the pulse from 80 to 120 had come on during the last twenty hours. He was advised to take fifteen grains of Dover's powder at bedtime, and to continue the use of chlorate of potash and ammonia, with some bark; and about ten ounces of wine, and some beef tea, and to remain in perfect rest.

*October 20.*—He passed a very restless night, with frequent delirium. This evening his pulse was weaker, very soft and feeble; his breathing more free, but of about the same quickness. His abdomen was rather distended; he had had all day frequent hiccough, and had been sometimes sick. He sweated profusely, almost constantly, especially at the head; and had a short shivering fit in the morning. His general strength appeared much lower. The swelling of both legs was increased, and the fore part of the left foot was dusky-blue, cold, insensible—evidently gangrenous. Thus it had been for about 12 hours. The femoral pulse corresponded with the radial:

the pulses of the tibials could not be felt on account of the œdema. From this time he rapidly became weaker, and without any marked new symptom, unless it were commencing gangrene of the left hand ; he died at 1 P.M. on the 21st.

The history of this case, for which I am indebted to Dr. Corbould, was that the patient had been an active and generally healthy man, till five years before, when he had Smyrna ague, followed by a severe attack of ‘Aleppo buttons.’ From that time he had had less good health than before, and had often boils ; and whenever he was unwell, was apt to have chills, and feverish attacks reminding him of his old Smyrna ague. His family had no known disease, except consumption. Of his children, three had died recently in an epidemic of Scarlet Fever, and it was believed that a drain ran under his house (at Sydenham), but there was no clear evidence of this.

His illness was of three weeks’ duration and began with irregular chills, and a fit of shivering, and heats, and sweatings, which he regarded as a renewal of his old malady. After a few days he had soreness of the throat, which went on until a large abscess formed in one tonsil. It was opened, and discharged freely. All this part of his illness was attended with an ordinary amount of fever, and much sweating, but with no unusual symptoms. About a week before his death, without any accession of other new symptoms, the affection of his cutaneous veins began. Those of the arms were first affected, then those of the legs. First, part of the course or branchings of a vein would be

marked with rather diffused red vascular bands (like those common over inflamed lymphatics); and with these were pain and tenderness. Then the vein would feel as if becoming hard, and at last quite hard, and closely knotted; and with this change the discoloration of the skin would gradually change to dusky brown, or nearly black, and then slowly disappear.

In both the progress and general distribution of the disease in the veins, there was an evident plan of symmetry; and usually the progress was from superficial to deep veins, and œdema followed at a distinct interval, the external signs of phlebitis.

The body was examined by Mr. Morratt Baker, who gave me the following report of it:—

*Post Mortem examination.*—Left leg.—The long saphenous vein was plugged with coagulated blood, apparently in its whole extent. The femoral, popliteal, posterior, and anterior tibial veins were in the same condition; and so were their branches, muscular and others, as far as was seen, either in dissecting them out, or whenever they happened to be cut across. Here and there the colouring matter of the blood had oozed through the femoral vein, and stained the coats of the artery, and other neighbouring parts.

Left arm.—The radial, and other superficial veins of the hand and fore-arm were plugged in the same manner as those of the leg; and on dissecting out the brachial artery, its venæ comites were found in the same state. The deep radial, and ulnar veins were not examined, but they were doubtless in a similar condition.

The external iliac, common iliac, and inferior cava veins were healthy, and free from clot.

The coats of the plugged veins appeared somewhat thickened, and the clots, which completely filled and uniformly distended them, were slightly adherent to their lining membrane. The right limbs were not dissected, but there appeared no reason to doubt that their vessels were in a like condition to that which has been described as existing in the left.

The arteries were apparently quite healthy, and everywhere in the limbs, as far as they were seen in dissection, entirely free from clot. They were traced down to the gangrenous part of the left foot, and here also were found quite pervious.

The heart was very flabby and fatty, but with no other disease than this, and all its cavities were remarkably free from either fluid or coagulated blood. Their lining membrane was deeply blood-stained. The pulmonary arteries on both sides were pervious and empty, excepting one branch of the right, which contained a small clot, apparently recent. The substance of both lungs was here and there emphysematous, and throughout congested and very œdematous. No secondary deposits were seen in any part of them. The right pleural cavity contained a considerable quantity of deeply blood-stained fluid. The liver was pale and fatty; apparently not otherwise diseased. The kidneys were flabby, soft, pale, and fatty.

I cannot venture to say on what, if on any, manner of blood-poisoning the development of this singular disease depended. It may be only by chance that, in the only other case at all resembling it that I have met with, there was also some reason for believing that the disease had

its origin in poisoning with foul air from a drain. This was the case of a clergyman, Mr. A.; a generally healthy man, with no known tendency to disease. In 1859 he superintended the opening of an old well, which proved so foul that it was at once closed again. Two of the men who had worked at the well were ill for some days after, with sickness, headache, and depression: and he himself felt slight nausea, for which he took a little brandy. A few days subsequently, and after a fatiguing journey, he had what appears to have been an attack of pneumonia, accompanied with fever and difficulty of breathing, and for which he was treated with leeches, and poultices. In about ten days, considering himself much better, he went down-stairs, but on reaching the drawing-room was suddenly seized with such excruciating pain in the left leg, that he was obliged to go to bed again; next day he was told that he had phlebitis. The attack of phlebitis soon subsided, and he returned by easy stages into the country.

A few days after this he was seized with 'low fever:' this lasted six weeks, and was attended with alarming symptoms; rapid pulse, great heat of skin, unconsciousness, and delirium; and slight hæmorrhage from the ears, and nose, and from the stomach, bladder, and intestines. During a lingering convalescence from this illness there was great swelling of the legs, especially of the right (the left having been the seat of the previous phlebitis): 'a fearful straining sort of pain in the region of the left kidney;' and a frequent recurrence, for about ten days, of 'most violent shivering fits, succeeded by fever, and profuse perspirations.' There were frequent, and violent

fits of hiccough ; and 'the throat was covered with an appearance of thrush of a yellowish-white colour.' At length Mr. A. regained his ordinary health. Thus the case ended with apparently complete recovery from the extensive inflammation of the veins of the lower limbs (and as we may assume), of those of the kidneys, intestine, and other parts from which hæmorrhage occurred. But ever since, there has remained a singular readiness for phlebitis in the trunk, and lower limbs. Thus in September 1861, after an unusually long walk, Mr. A., on examining a tender spot on the inner side of the right leg, found a red streaking of the skin over the internal saphena vein, with a hard cord-like condition of the vessel, for about two inches of its length. With horizontal rest this phlebitis, which did not extend itself, passed off. In the beginning of December in the same year, phlebitis occurred in the veins of the right groin, and spread to those of the abdomen, producing tenderness and redness of the skin, and leaving, as these passed away, a bruise-like discoloration of the surface. The veins affected in this attack remained much enlarged, and varicose. During the autumn of 1864, Mr. A., after a fatiguing walk, discovered a small inflamed spot in a vein of the left groin, and from this centre phlebitis spread throughout all those veins of the abdomen which had remained varicose from the attack in 1861. At the end of three weeks the affection suddenly left the abdominal surface-veins, and fixed itself in those of the inner side of the right thigh, causing considerable pain, and for the time, wholly disabling the limb. Treated with entire rest of the part in the horizontal posture, the



disease subsided, and Mr. A. was well again, and able to take clerical duty till January 1865, when, after some precursory tenderness, the fourth onset of phlebitis showed itself in the veins of the right calf. This was of short duration, but left the limb much weakened.

In strong contrast with these cases of widely diffused phlebitis, are those in which a single small portion of a great vein becomes obstructed. I have referred to some of these as occurring in connection with gout; but I have seen other instances which, though no trace of gout or other general disease could be detected in them, may serve for illustration of some points in the local pathology of gouty phlebitis.

A man about 50 years old, thin, and moderately muscular, and usually healthy, observed, during a September, that his right arm was growing larger, and, as he thought, stronger, and fitter for work. But, as it still increased, it became inconveniently heavy, and certainly weaker: and then he applied for advice. I found the upper arm two inches more in circumference than the left, and the whole limb enlarged in the same proportion. It looked full, round, and muscular, and felt firm, and œdematous, not only in the subcutaneous tissue but throughout; the skin was tense, cool, and pale. In nearly four inches of its course the axillary vein felt large, hard, and cord-like; and in one or two spots over it pressure caused pain: but with this exception no pain was felt in any part of the arm. Some of the superficial veins in the arm, and over the upper and front part of the chest, were enlarged, and when the arm hung down for a long time the hand became dusky. No cause

whatever could be traced for this condition : no injury or pressure ; no known inheritance of disease ; no disturbance of the general health, past or present.

With the help of the hot douche, warmth, and friction, the swelling of the arm very gradually subsided ; and, as it did so, the cord-like feeling of the obliterated axillary vein became more distinct. A year elapsed before the vein regained its completely natural condition ; but it has now for more than five years been well.

Very similar to this case was that of a regimental servant, 27 years old, previously healthy, and very active, who was sent to me on April 12th, 1855, by Mr. Bossey, on account of the condition of his right arm. This was swollen, and, when it hung down, he had a feeling of weight and fulness as if the blood could not return from it. The arm was indeed about a quarter or a third larger than the other ; but its chief enlargement felt as if due to great muscular development. Besides this, however, it had probably some general swelling, which might be from slight œdema of its deeper tissues ; its subcutaneous veins were all over-full ; there were small bluish spots over the deltoid, as if from small clusters of varicose veins, and the veins over the right pectoral muscles were fuller than those over the left. This condition of fulness extended as high as the deltoid's origins :—the shoulder especially was remarkably broad and large, and there were fulness and some prominence of the upper part of the right great pectoral. The heart's action and sounds were natural ; so was the pulse at both wrists, equal and moderately full. It was uncertain how long this state of the arm had existed ; it had been

observed only a week ; its rate of increase was unknown. The patient remained in about the same condition till May 4th, when he was taken into the hospital, and ordered milk diet ; six leeches every third night ; and three grains of mercury with chalk every night and morning. He was under this plan for about a fortnight, and certainly improved, the arm decreasing, and its veins becoming less full. Then he had an attack of scarlatina, and while this was running its course all signs of the affection of the arm disappeared. It regained its natural size ; the veins were scarcely fuller than in a healthy man ; he lost the sensation of numbness, and believed himself well at the end of May.

A marked feature in both these cases was the apparent, and, I believe, real enlargement of the muscles of the limb. I referred to this in a paper published in the 'Medical Times and Gazette' of March 1858, and soon afterwards received a letter from the late Professor Laurie of Glasgow, from which the following is an extract :—

'I am the subject of one form of that peculiarity which I suspect is not very common, and which depends, as you hint, on diseased or varicose veins.

'In the year 1831, I had an almost fatal attack of Typhus. During convalescence, I was seized with phlegmasia dolens of my left lower limb, attended with exquisite pain in the ham and calf. When the pain subsided, and I commenced to leave my bed and dress, I was astonished to find that while my right thigh and leg were emaciated, as they usually are after such an illness, my left was nearly, if not actually, as large as

when I took to bed. It was not in any way mis-shapen, or œdematous—simply plump, and full sized. When I recovered so far as to be able to walk, I found the veins enlarged, and, by night, the whole limb œdematous, but in the morning the soft swelling had disappeared, and the muscular enlargement round the calf remained. The excess was at least an inch. For many months I was unfit for much walking; indeed, but for a large laced stocking, I should have been compelled to relinquish my profession. I wore one for two or three years, and then was able to lay it aside; but as I got older, I was obliged to return to its use, and for years back I have worn an elastic stocking. The veins are now decidedly varicose, and the limb becomes œdematous after unusual fatigue. The soft swelling readily disappears under rest, and, as formerly, the muscular enlargement remains. It is, however, now less obvious than formerly, as I am unhappily much less muscular than I was ten years ago.'

The occurrence of acute phlebitis during, or at the beginning, of pyæmia is well known. It is, I think, less considered that cases of the less acute forms of phlebitis are frequent after all the suppurative phenomena of pyæmia have passed by. Some instances of this were related in the last volume of the Reports (vol. i. p. 5). I would not maintain that such cases are peculiar sequences or residues of pyæmia. They may rather be reckoned among a class of cases of what may be called 'post-febrile phlebitis;' for after any illness attended with acute fever, and often without any very marked exhaustion, it is not rare to find one or more veins of the limbs becoming almost

suddenly painful and hard, and then to see œdematous swelling of the parts beyond them. Such attacks of phlebitis seem especially common after typhoid fever. They usually subside without treatment. Among many instances, I have seen nothing worse than an interruption or a delay of convalescence, followed by permanent enlargement, but not disability, of the limb.

The overgrowth of parts whose veins are obstructed, to which I have referred, is very notable in the rare instances of phlebitis in young children. I have lately seen a child five years old, whose right lower limb has for three years been growing larger than the left. In the day, and when long dependent, it becomes œdematous ; but during the night the œdema disappears, and the limb only looks much too large. Many parts of the thigh are mottled, dusky, and pink, and part of the skin at the knee is coarse-textured and warty. The whole aspect of the limb is like that of the limbs of adults in which, as in Professor Laurie's, the femoral or common iliac vein has been long obstructed. One might suppose it a case of simple hypertrophy, but that the limb is cold, not over-warm ; or one of obstructed lymphatics, with growth from retained lymph, but that the blotches on the skin are characteristic of obstructed veins.

## *RESIDUAL ABSCESSSES.*

---

UNDER the name 'residual abscesses' I would include all abscesses formed in or about the residues of former inflammations. Most of them are formed where pus, produced long previously, has been wholly or in part retained and become dry, or in some form 'obsolete.' But some of them, it is probable, are formed in the thickenings, adhesions, or other lowly organised products of inflammation long past.

Abscesses thus formed are probably well known to many ; but, to give them a name and separate illustrations may help to show that they are of more frequent occurrence than is commonly supposed, and are often important in diagnosis.

Suppuration among the products of a former inflammation is probably an illustration of what may be held as generally true concerning many relapsing inflammations, namely, that they are due to the disturbed or interrupted nutrition, not only of the tissues deteriorated in previous inflammations, but of the new materials that were formed among them. Thus, in the frequently relapsing inflammations of testicles, and joints, and other parts that one sees in a constantly 'fretful' state, the 'weakness,' 'low

vitality,' or 'want of tenacity of composition,' which are indicated by inflammation under every slight provocation, are to be ascribed rather to the remaining products of former inflammations than to the original textures of the parts. Thus adhesions become inflamed, and residues of pus, degenerating under irritation, initiate or take part in a renewed suppuration.

Some of the most striking instances of residual abscesses may be found in connection with diseases of the spine.

A patient about 40 years old had, as was supposed, acute pleurisy; but it may be believed that, whether with or without pleurisy, she had acute caries of the spine, for, when she had recovered from the pain and other severe signs of her malady, a very prominent angular curvature of the lower dorsal part of her spine was found. She remained in feeble health with various evidences of scrofula, but no new disturbances appeared at or near her spine till about six years after the formation of the angular curvature, when a large lumbar abscess formed. Its formation was attended with very little disturbance of the general health, and it remained nearly stationary for nearly two years and then disappeared and gave no further trouble. Subsequently a scrofulous necrosis of the tibia ensued, and about a year later death occurred in acute bronchitis.

I suppose that in this case the abscess formed in or about the residue of inflammatory products which had been at rest for six years. The supposition is justified by two similar but clearer cases.

A lady about 30 years old had well-marked angular projection of the last two lumbar vertebræ and a psoas abscess, which extended far down the outer part of the thigh, and might be estimated to contain at least two pints of pus. She had not suffered severely during the progress of the disease, but was very weak and wasting. I advised her to remain in perfect and constant rest on a couch, and to be carefully nourished, and kept as nearly as possible in good general health. At the end of two years, during which this plan was carefully carried-out, the abscess, having slowly diminished, had disappeared. Nothing could be felt but what might be considered shrunk and hardened abscess-wall, and the patient was fat and strong. She resumed active habits of life, and among other feats of good health walked to the summit of the Righi and some other Swiss mountains. Thus she continued well and vigorous for four years; then she had a severe and tedious bronchitis, and became very weak, and an abscess as large as the previous one quickly formed. Again she rested for two years, but with no other advantage than that of regaining the strength lost during the bronchitis. The abscess slowly increased, but with very little constitutional disturbance; and at the end of two years and a half from its appearance, it opened spontaneously and discharged. It is still, after more than two years, discharging: but the general health appears sound and recovery most probable.

A gentleman about 20 years old had what was believed to be acute pelvic or iliac inflammation, but, after some peril of his life, recovered and was able to practise actively in the law. Twenty years afterwards he



began to suffer with various intestinal distresses, and with pains in the back and limbs, which, as he watched and described them very scrupulously, led to his being thought hypochondriacal, till a large abscess appeared in the upper part of his right thigh. After this a lumbar abscess also appeared, and discharged into the intestine while that in the thigh discharged externally. He slowly wasted with hectic and after about two years died : and the examination showed that the abscesses were connected with old carious disease of the bodies of the lumbar vertebræ. The carious bone had become hardened and smooth, and bridges of new bone had formed connecting the bodies of the vertebræ, which were so hard and compact as to leave no reasonable doubt that they were formed during and after the illness which occurred more than twenty years before death, and which had been followed by at least fifteen years of health and apparent soundness of textures.

The state of parts in the intervals of suspense in these cases, as well as much of the general history of residual abscesses, is illustrated by a specimen in the Museum of the Hospital.<sup>1</sup> It shows two psoas muscles with cavities occupying the place of their whole interior substance. The cavities, walled-in by the thin remains of muscular substance, and lined by thin membranes, were filled with the half-dry remains of pus. Externally the muscles appeared healthy, except in being pale ; they were of natural size, and the adjacent structures were all healthy, unless for a very slight superficial roughness of the body of one lumbar vertebra.

<sup>1</sup> Series V., No. 30, represented in the 'Hospital Reports,' vol. V., pl. I.

The history of this case is not known : the specimens were taken from a body sent to the dissecting rooms ; yet it is plain enough that two psoas abscesses were formed, that they failed of being discharged, and that the retained pus withered and became half dry and obsolete ; and it is equally plain that parts left thus unsound must have been very susceptible of fresh inflammation, and if inflamed would have become the seats of residual abscesses, such as formed in the cases I have related.

Collections of withered and half-dried pus, similar to these, may be found not rarely near joints long ago diseased but now quiet. They are sometimes seen during excision of the knee, especially in cases in which the operation is done, not for any great severity of disease, but for repeated disabling relapses of inflammation in a joint without evident suppuration. Similarly, an abscess, long quiet, but with pus little changed, was found in the following case :—

A woman nearly 30 years old, in good general health, was admitted under Mr. Stanley with a circumscribed swelling over and above the left sacro-iliac symphysis, painless and elastic. It was thought to be a fatty tumour, but the operation begun for its removal let out pus from a cavity leading, by a narrow track, to the hip-joint. Disease of this joint had existed twenty years previously, and had subsided, without apparent suppuration, after a year's rest. The patient had remained lame with stiffness of the joint, but with no other distress ; and the abscess had not been observed for more than two years before it was opened.

Cases of residual abscess such as these are sometimes

the cause of disappointment in cases of diseased joint, especially of diseased hip-joints apparently repaired without suppuration, and remaining, to all appearance, well for one or more years.

A woman 25 years old, healthy and strong, came with abscess over the left hip-joint. When 11 years old she had disease of this hip, followed by nearly two inches shortening of the limb. At 18, after a very long interval of apparent recovery, a swelling formed under the sheath of the femoral vessels, and now at 25 it contained half a pint of fluid, which one could not doubt was pus. The swelling was painless, and was slowly increasing without any disturbance of the general health. It was left for spontaneous discharge.

A student, 20 years old, related that he had often, in early life, had scrofulous disease of the cervical glands, and when he was 13 had inflammation of the left hip-joint, which, without apparent suppuration, was followed by shortening of the limb to the extent of about three inches. Of these three inches about half was due to defective growth of the limb, the remainder to ulceration or absorption of the head and neck of the femur. But the new-formed joint, if such there was, was freely moveable and so sound that, for the last five years, he had been constantly gaining strength in the limb and living actively without pain or illness.

During the last ten months he had observed a gradually increasing swelling in the upper and outer part of the thigh, but it gave no pain or trouble till, within the few days before my first seeing him, the skin over it inflamed. The swelling felt now like a chronic abscess pointing, and

after a few days' treatment was punctured. About ten ounces of thick pus were let out. No fever or other serious disturbance followed, and the abscess-walls gradually contracted, leaving a sinus four or five inches long leading towards the remains of the acetabulum. To heal this, tincture of iodine was injected. Three days afterwards rigors and a sharp attack of fever ensued, and these were followed by swelling and pain about the sinus, and then by a copious discharge of 'chalky' matter and thick pus.

A large quantity of this chalky matter, which could only be regarded as a residue of pus formed five or more years previously, in the earlier stages of the disease of the joint, was discharged with fresh-formed pus and small fragments of cancellous bone. After many months the discharge diminished, and only a long sinus remained; but signs appeared of tuberculous disease of the genital and urinary organs, and with this the patient died—about nine years from the first indication of disease of the hip-joint, and about three years from the first appearance of the residual abscess.

Another group of cases which I believe may be referred to residual abscesses are found among instances of necrosis of the interior of long bones. Two remarkable examples have lately been in the hospital.

In February last a woman, 38 years old, was in Sitwell Ward under my care, with what I believed to be abscess in the head of the tibia. There was general swelling at the part, with heat, and at times such pain as the patient called 'frightful,' and 'agony.'

When she was ten years old—that is, twenty-eight years before admission—she had inflammation of the leg in consequence of a fall, and this was followed by exfoliation of several small portions of the upper part of the tibia. They were discharged through abscesses or sinuses which remained open for five years, and in or about which many attacks of inflammation occurred. At the end of these five years the patient appeared well: and so she remained for twenty years, leading an active life and feeling no pain or distress in the limb. Three years before her admission, in consequence, probably, of over-fatigue, the leg began to be painful and slightly swollen about the upper part of the tibia; and from this time onwards she suffered, especially in winter, from the fierce attacks of pain for which she came to me.

Shortly after her admission, I perforated the head of the tibia at the place of most intense tenderness, close by some of the scars of the openings from which sequestra had been discharged. The drill entered a small abscess-cavity and a few drops of pus escaped. The operation was followed by complete release from pain.

In the next bed to this patient was a girl 13 years old, who had had similar necrosis in the upper part of the tibia following injury five years previously. At various times sequestra had been discharged or removed: then followed an interval of apparent health, and then abscess, such as might be called residual, in the cavity that had contained sequestra. This abscess was perforated and slowly healed.

In 1860 I saw, with Mr. Edgar Barker, a lad 14 years old, who, fifteen months previously, had acute

periostitis and necrosis of both tibiæ at and about the junctions of their middle and lower thirds. I removed portions of the inner layers of the walls of both the tibiæ: the sequestra being almost as symmetrical as the disease had been: both lying in similar cavities in the walls and with similar cloacæ. The wounds healed favourably and all appeared well for nearly seven years.

At the end of this time, the patient's general health having been much reduced during residence in China, abscess slowly formed at the lower part of the right tibia, and I had to perforate it. The abscess cavity was evidently in or very near that from which the sequestra were removed seven years before. The wounds of the operation healed, but the tibia is still frequently inflamed.

In none of these cases did I find distinct residues of pus in the cavities from which sequestra had been removed and in which, long afterwards, suppuration ensued. Yet it is highly probable that, with stricter search than is possible during an operation, such residues would be found: for the condition of sequestrum-cavities, with rigid walls and suppurating linings, is just that in which we might expect an incomplete filling up with new tissue, and remaining spaces filled with residues of pus.

Many other cases might be cited of residual abscesses with histories and characters closely resembling those just related. Thus, in lymphatic glands remaining large and indurated after scrofulous inflammation in early life, it is not rare to see, many years later, fresh inflammation followed by abscess and discharge of thick caseous and

calcareous matter, the residues of the earlier inflammatory formations. And by the rectum, hardnesses, remnants of inflammation threatening or producing abscess, are nearly sure to suppurate, though many years of apparent quietude may elapse. I have thus known an interval of 14 years elapse between the healing of an abscess by the rectum and a renewal of suppuration in the residue of scar and unsound tissue which it left.

Taken together, these cases may suffice to illustrate the general fact that abscesses are very apt to form in the seats of inflammations long past, especially where residues of pus remain. Such residual abscesses may form, as in the seats of past necrosis, with all the pain and constitutional disturbance commonly attendant on acute abscesses; but much more frequently they form slowly and without pain or fever or any other distress. In these cases they acquire great interest from the difficulty of diagnosis. They may resemble bursæ or fatty or fibro-cellular tumours, and only a carefully ascertained history of the case may suffice for their discrimination. On the ground of history, a residual abscess may be suspected whenever a swelling, not altogether unlike an abscess, appears in or near a part that has long previously been the seat of an inflammation, especially if it appears or greatly increases soon after anything that has impaired the general health.

In the treatment of residual abscesses, no other rules need be observed than those generally accepted for the treatment of ordinary acute and chronic abscesses. I have only once seen a residual abscess disappear without discharge: and the probability of such an event is so slight that I would rather promote than retard their

suppuration. But as to the time and manner of opening such abscesses, and the after-treatment, the general rules for the management of ordinary abscesses may suffice.

Many of the cases I have related are instances of the very long time during which a part once damaged by inflammation may remain unsound: and the disappointment felt on the occurrence of a residual abscess may, to some, seem to cast discredit on the practice of permitting or aiding the absorption or drying-up of chronic abscesses connected with disease of spine or joint. But the discredit would not be just: for many patients in whom such abscesses have disappeared have never suffered after-consequences: and, so far as I have yet seen, the healing of discharged residual abscesses is quicker, and attended with much less disturbance, than the healing of first abscesses of the same size and in similar situations.



## *ON DISSECTION-POISONS.*

---

THE subject of dissection-wounds has, of late years, seemed less important than it was thought to be some thirty years ago. When I was a student, it was believed that such wounds were not rarely fatal, and that frequently they led to severe disease. Now, they are often made light of. My recent illness disposes me to think this levity misplaced. It is very improbable that there should be any change in the virulence of poisons generated in the dead body; and if there be any change in the consequences of inoculation with them, I should think it due to the changes in the manner of treating them. In my student-days the first signs of inflammation following such wounds were generally treated with leeches, purgatives, spare diet, and other depressing means; now, as for many years past, the prescription is good food, wine, rest, and, above all, fresh air. You may be certain that this is the better prescription; and I believe that if I could have availed myself of the whole of it, especially of the last two ingredients, I should have averted most of the troubles that I have lately suffered.

Let me now speak to you about these troubles. And, first, as to their source and the conditions on which they

depend. The material with which I was infected was in the dead body of the patient on whose case I last lectured.<sup>1</sup> He died after lithotomy, with acute cellulitis at the back of the pelvis, and with acute pleurisy ; both of which, I believe, were of pyæmial origin. The grounds for this belief I stated to you when, at the last lecture, I showed you the morbid structures removed after death. I refer to it now only that I may remind you of the probability that the inflammatory products of pyæmial disease are especially virulent after death. The most dangerous examinations appear to be those of women who have died with puerperal peritonitis ; and most of the cases thus named are pyæmial. I can only suspect that the material which poisoned me was in the pleuritic fluid, in which my hands were long soaked ; but what the poisonous material—the virus—was, neither this, nor any record of similar cases, enables me to tell.<sup>2</sup>

Whatever the virus was, it soaked through my skin ; I had no wound or crack of any kind. Mr. Young, who began the examination, cut himself and suffered no harm. I had a sound skin, but one not impenetrable, and through it the virus worked its way. Mr. Young did what I advise you to do in any similar case. He washed his hands, sucked the cut part, made it bleed freely, and then took care of himself, and did not rub the cut part with

<sup>1</sup> It is recorded in 'The Lancet' of May 27, 1871, p. 711.

<sup>2</sup> A sad instance, in proof that it is not any ordinary decaying or decomposing animal matter which thus poisons, has lately occurred. One of the Museum-servants in the College of Surgeons, who had rarely passed a day during several years without frequent contact with animal bodies in all stages of decomposition, with macerating bones and preparations in spirit, took an appointment in the anatomical school of St. Thomas's Hospital. In a fortnight he wounded himself while preparing for dissection the body of a child dead of pyæmia. In a few days he died of septicæmia.

nitrate of silver. He thus reduced his risk to less than that of the absorption of virus through sound skin.

This absorption is generally spoken of as if it were a strange and rare fact. Rare it may be, but strange it is not; for thus it is that, most commonly, the poison of chancre passes through skin and that of gonorrhœa through mucous membrane, and thus that the irritant matter of cantharides and other skin-irritants passes to the cutis, and from it may be absorbed. A wound or a crack that exposes a vascular surface is doubtless very favourable to infection by any virus; but it is not essential; I wish it had been and were still so.

Thus, then, this virus passed into me; and I will tell you presently some of the mischief that it did. But first let me say that this mischief would not have happened but that there was in me something that made my blood, or some of my textures, susceptible of such diseased processes as the virus could excite. For not all men can be made ill by a virus from a dead body, nor can the same man be made ill at all times; but there must be what is called a fitting soil for the virus to work in. We know no more what this soil is than we do what the virus is; we have to use figurative expressions; but we need not doubt that they imply facts, and that, for any living body to be made diseased by a dead one, there must be certain living materials which can be diverted by the dead ones from their normal relations and turned into a morbid course.

A chief interest, in reference to these various susceptibilities of the influence of virus from dead bodies is, that one may become insusceptible. They who are day after

day engaged in dissections or in post-mortem examinations, usually acquire a complete immunity from the worse influences of the virus. They may suffer local troubles from it, and some among them may get that curious warty affection of the skin of the hands or fingers which Dr. Wilks described in the 'Guy's Hospital Reports;'<sup>1</sup> or they may lose health through the influence of bad air or over-work; but they do not suffer with any infection of the lymph or blood.

Such an immunity as this I enjoyed when I was demonstrator of morbid anatomy, and made almost daily post-mortem examinations. It mattered not what was the disease of which the examined body died, or what was the state of my skin, sound, or cracked, or wounded: nothing hurt me; and this immunity lasted many years.

A similar immunity in the case of many fevers is possessed by those who have passed through one attack. It is, as you know, very rare to have a second attack of scarlet fever or of typhus; and it is, perhaps, more rare to have a second indurated chancre, or a second complete series of secondary symptoms. In these cases we believe that the first attack alters the blood or tissues in such a manner that they are no longer susceptible of the same morbid changes as they were, even though in all other respects they appear unaltered. But I think it is not in this way that the immunity from the infections of dead bodies is obtained; for though few demonstrators or others constantly engaged in morbid anatomy escape quite unscathed, yet some do so; and these may be enough to prove that the immunity is acquired by what we may call

<sup>1</sup> 3rd Ser: Vol. viii, p. 263.

custom. Just as a man, beginning with small quantities of strong drink, and gradually increasing them, may never get drunk, even though he may at last drink hugely too much ; or as a Styrian (if the stories be true) may take arsenic till he can hardly be poisoned with it ; so may any one by custom become insusceptible of the evil effects of the corpse-poisons. It may be that his blood and tissues become less alterable by alien matters, or that the living parts acquire more power of assimilating or of excreting the dead materials that are introduced among them : how it comes to pass we cannot surely tell, but the fact of an acquired immunity seems certain.

I wish some of you would study these immunities more closely than any one has yet done. They are of infinite interest in physiology, for they show a striking contrast between dead and living things. *Gutta cavat lapidem* is a pattern of many proverbs that express the popular knowledge that all dead things yield to the repeated application of small forces ; yet living things rather strengthen themselves against such forces. Not that this or any other contrast between dead and living things is absolute or constant ; yet this, like all the rest, is worth most careful study. And of still more interest in pathology are these acquired immunities ; for as yet we know scarcely more than the bare fact. Some immunities are local—such as that of which anyone will tell you who has had a long succession of blisters on the same place. He finds that at last he can be blistered there no more ; yet you may blister him on some other part. And such, I suspect, is the immunity from the virus of soft chancre which may be obtained through frequent inoculations ;

but of this I have had no experimental knowledge. I think, however, that I have had personal knowledge of acquired immunity of another kind of inserted poisons—that, namely, of fleas, bugs, and the like pests of vacation-life. Let me commend this subject of study to any of you who are not unwilling to be martyrs to science. I think you will find, as I have found in some continental tours, that for the first night you may be driven half wild by the vermin of the bed or of the air, but that after a time you care less for them, and that at last you become indifferent to them; not because they leave you alone, but because their virus no longer irritates the blood or the textures that at first fiercely resented it.

This instance may seem a trivial one; yet I believe that in it you may find illustrations of much more serious things, even of that doctrine of syphilisation of which you have heard so much.

But now observe: this immunity, it seems, may be gradually lost, just as that after vaccination may be; the influence, as the expression is, gradually wears-out. My case is evidence of this. Years ago no virus of a dead body could hurt me; but then came a time in which I made few or no examinations after death. I stood by and watched others making them; and I became again susceptible to poisons that were once innocuous. My blood and textures regained the state they had before ever virus was introduced into them, and I became again more poisonable.

Think how curious a fact this, which is only one of a large class, is. Being more susceptible of morbid influences, one seems less healthy; but, in truth, one has

become more healthy. Just as after vaccination, or after scarlet fever, one's blood or textures, or both, being so altered that the same poison will no longer act on them, seem the better for the change; yet they are morbidly altered.<sup>1</sup> And then, for years afterwards, by the exact assimilation of the nutritive process, they are maintained in the same morbid state; like a scar which, useful as it is, is yet a morbid structure. And as a scar, if not too deep, gradually wears out—that is, gradually reverts to the healthy skin-structure,—so is it with the blood and textures of the once infected person. Recovering their natural condition, they become again susceptible of infection; becoming again healthy, they become what may seem weaker, and are more liable to disease.<sup>2</sup>

Think, again, of the long time during which facts like these prove that a process of recovery from disease may continue before it is perfect. The years through which a man must pass before he becomes liable to a second attack of these diseases tell the time that is required for his complete recovery from the first. Let the fact teach

<sup>1</sup> Some opponents of vaccination have used this and a similar expression in my Lectures on Pathology as if they implied a mischief in vaccination. None but a silly or dishonest person could so use them: but with a very few strange exceptions it is only by such persons as these that vaccination is opposed.

<sup>2</sup> The circumstances of an illness which Dr. Symes Thompson suffered many years ago, and which he has described in the *Lancet*, June 24, 1871, may illustrate this point. When he was Pathological Registrar at King's College Hospital he was constantly exposed to the various contagious fevers, and, at post-mortem examinations, to the poisonous fluids of dead bodies, yet as long as he remained at his post he escaped all infection although his general health broke-down from over work. But on his return, strong and well, from a holiday in the pure air of the coast, he had so lost this immunity that he was immediately attacked with scarlet fever in a severe form, and also with erysipelatous inflammation of the hand and arm, and mischief in the axillary lymph-glands, following a scratch on his finger at a post-mortem examination.

you both patience and hope in your treatment of the consequences of disease. It makes me believe that I might now, with perfect safety, examine any dead body whatever.

Now let me tell you, with commentaries, what the virus did in me. The examination was made on February 4, and after it I finished a long day's work, feeling unharmed. On the 5th, which was a Sunday, I felt, not ill, but tired, and I spent the greater part of the day idly, falling asleep over good books. On the 6th I lectured, in the morning, on the morbid structures obtained from the examination, and the theatre was, as usual on Mondays in the winter, very cold. I was chilled and very tired; but a heavy day's work had to be done, and I did it. I had observed three or four small pustules on my hands, especially one on the back of my left hand, but they caused no discomfort, and I had no suspicion of being hurt till about five o'clock, when I felt my left axillary glands tender, and could not press my arm against my side. At half-past eight, when I got home, I was cold and ill; the mischief had begun.

I mention these things that I may illustrate, as I have often before done, the influence of fatigue in developing disease, or in at least making one susceptible of it. I can be as sure as of anything which has not occurred, that if I could have rested for two or three days after the insertion of the virus, it would have done me little or no harm. I cannot tell you whether it is by mere diminution of a normal power of resisting changes, or (as Dr. Carpenter has shown to be more probable) by the production in the fatigued organs of some material on which



morbid poisons may multiply or flourish ; but you will find in every day's practice that fatigue has a larger share in the promotion or permission of disease than any other single casual condition you can name.

Thus, then, I was prepared for receiving injury, and the injury was supplied in some material of this dead body. And I repeat that this material was probably something special enough to be called a virus or poison ; for although any decomposing organic matter may in some persons give rise to the worst forms of blood-poisoning, yet I have no reason to think they would have done so in me. Not a day had passed for many months without my hands being in contact with pus and other decaying or decomposing organic matters ; yet none of these poisoned me, though I was often as much fatigued as when I fell ill.

I wish that I could tell exactly all the signs of illness that I so anxiously watched ; but during acute disease one cannot record, and after recovery one cannot well remember, the daily progress of a case. I can only tell the general consequences of this poisoning.

The first thing observed was a few small pustules on the hands, very trivial-looking things, which appeared on the day after the examination, and in the next week or ten days dried without discharging or causing any local trouble. I think they were only local effects of the simply irritant fluids of the body, or of the carbolic acid oil, with which I had uselessly though thoroughly rubbed my hands before beginning my part of the examination. I see no reason for supposing that the material which poisoned me was from any of these pustules.

The first sign of the general poisoning was (as I have said) the pain in the axillary lymph-glands. No lymph-vessels could be seen or felt up the arm at any time ; the absorbed material traversed them, but did not irritate them : but the glands enlarged, and became painful to a degree far surpassing the swelling or any other sign of inflammation in them. I do not know whether this exceeding painfulness was due to something in the poison, or was dependent on some peculiarity in my nervous system. I have seen it in one other case of poisoned wound, in which, as in mine, it indicated no great severity of inflammation in the glands. With me it slowly diminished, but did not quite cease till I was nearly well again, although no considerable morbid changes took place in the glands. They were large and painful ; nothing else.

Next after this affection of the axillary lymph-glands came widespread inflammation of cellular tissue. But before saying more of this I ought to tell what may have had some influence in determining the course of my case—namely, that my axillary glands were already damaged, and may have been less penetrable by fluid than they should be. More than thirty years ago, when I was a student, I had an irritable large pustule on a finger, due, I think, to some irritation in dissection, and this was slowly followed by suppuration of my left axillary glands. After discharging for many weeks, it healed with a deep scar and shrivelling and partial calcification. Thus damaged they may have too much hindered the course of the absorbed fluid ; but I doubt their doing so, for I have never been conscious of any obstruction in them ;

and in other cases of patients with healthy lymph-glands the same inflammation of cellular tissue as I had occurs.

This inflammation, which became evident four or five days after the infection, extended quickly from the axilla up the left side of the neck, over and below the clavicle, and down the back nearly as far as the ilium. Observe the range within which the inflammation was limited, for in this, as in other cases, it was in the range of lymphatics directly, or not far from directly, connected with the lymph-glands first affected. A frequent site for such cellular inflammation is down the side of the chest, or over or beneath the pectoral muscles. Thus it was with Mr. Bloxam, who was poisoned about a fortnight after me, and in whom acute pleurisy with effusion occurred on the same side. But, so far as I know, cases do not occur of similar inflammation on the opposite side, or separated far from the lymph-glands corresponding with the poisoned part, unless it be at a later period of illness, when pyæmia is established. This seems to be a point of distinction between these dissection-poisonings and pyæmia; their effects are at first, however severe, comparatively limited to the part poisoned, and to the lymphatic vessels and glands, or to the cellular tissue, nearly in relation with it. They may lead to pyæmia, but they do this only by secondary changes, or, as it were, by some accident.

The range of cellular inflammations in these cases, following, as they do, on the affection of the axillary glands, seems to indicate that they are due to arrest of lymph in the affected parts, and to its being poisoned by reflux from the glands. Thus poisoned it would at once

infect the cellular tissue in contact or close proximity, and hence would be derived the spreading inflammation, much like phlegmonous erysipelas, with sloughing or diffuse suppuration.

In my case the inflammation, at first widely diffused, gradually concentrated its effects in two places—first at the back, nearly over the angle of the sixth rib, where suppuration was evident about a fortnight after the first appearance of the swelling, and, about a week later, under the edge of the trapezius, just above the level of the clavicle. Both these abscesses were freely opened. The first was seated in the deepest part of the subcutaneous cellular tissue, and the second under the cervical fascia. The first suppurated very freely; the second scantily. Both healed soundly in five or six weeks from the time of opening them.

The position of this second abscess deserves notice, for it was probably due in part to the old damage of the axillary glands, of which I have already spoken. It was such an abscess as might have pointed in the axilla, and I always felt as if it would do so, for hardness and pain could always be detected there. But it seemed as if the axillary tissues would not yield, and therefore the abscess extended upwards, above the apex of the axilla, to the subfascial tissue beneath the edge of the trapezius. Both these abscesses were opened early—that is, so soon as fluid was clearly discovered in them. And I felt the comfort and utility of this practice; for though they had given me very little pain, and had been soothed with poultices, yet they seemed to keep alive my fever, and especially before the pointing of the second I had chills

and exhaustion, which were evidently remedied by its being opened. In the opening I enjoyed the safety which I have often conferred on others by the adoption of Mr. Hilton's plan. The abscess lay very deep, and was very small, under the edge of the trapezius, and with integuments and cellular tissue so thickened over it that all the landmarks for incisions were lost, and the district was one in the depths of which a knife, however skilfully used, might have given me serious trouble. The director penetrated the abscess safely, and the forceps sufficiently dilated the opening, and I had self-evidence on which to urge you to use Mr. Hilton's plan in all operations on abscesses in dangerous regions.

After the opening of the abscesses the infiltration of the cellular tissue about them cleared up slowly, very slowly; and, more than once, patches of thick œdema appeared over the left ilium as if suppuration would take place there; and when erysipelas came on there was much more than usual œdema with it, as if there were still some hindrance to the free movement of the lymph.

The general illness that attended these suppurations was not severe. When it was evident that abscess would form—that is, a fortnight after infection,—I was sent to Norwood, and, with the fresh air and quiet of the place, I gained strength, and could eat and drink well, and digest pretty well, and seemed floating into convalescence. But just before the evident suppuration of the second abscess, I had chills every day, and after them heat; and with these great loss of power and general distress—distress so keen that it seems strange that I should now be unable to describe it, or even clearly to remember it.

This general illness, this constitutional disturbance, was, I believe, the beginning of erysipelas. But before speaking of this, let me tell that the pus from my abscess appeared to have more irritant properties than ordinary pus. For my childrens' nurse, who made and changed my poultices, pricked her finger ; and this was followed by very acute inflammation and suppuration, extending from the puncture over all the hand and forearm. The same thing happened, through a similar accident, to Mr. Bloxam's nurse, one who was habituated to pus of all ordinary kinds, and had not suffered from it.

Of the erysipelas that affected me after these abscesses, beginning about a month from the time of infection, I need not say much ; for it had no remarkable feature, unless it were in the degree of subcutaneous œdema which predominated over the inflammation of the skin and remained very long. Beginning near the wound in the neck, the erysipelas spread slowly over the chest and back, down the left arm, and over parts of the thighs. The eruption was much more extensive on the left side than on the right ; it slowly cleared-up, and after desquamation no trace of it remained, unless it were in a weakness of the minute blood-vessels of my arm ; for after my bath, for many weeks the affected part of this arm appeared dusky and mottled.

It was during the erysipelas that my general health suffered most ; but my recollection is not clear about anything but the feelings of intolerable restlessness, which nothing but wine or morphia would tranquilise, and of the interest with which for many days I watched the progress of my own case, fancying myself an intelligent

observer. At last, after the erysipelas had been extending for about ten days, and at the end of nearly six weeks from the infection, there came what seemed to me like a crisis. During the night in which my pulse and temperature were at their highest I had a profuse sweating and a profuse flow of urine, such as I never had in my life before; and next day my pulse and temperature had come down to what might be deemed safety-points, and I was conscious of returning health.

In the treatment that I received during the erysipelas, I am sure that quinine was very useful. I generally took three or four grains of the hydrochlorate three times a day, and it always (I think) lowered my pulse, and diminished my restlessness and (I believe) my temperature. And I wish I could tell the comfort that morphia gave me—whether in bringing sleep, or in changing the unrest that always increased towards night into a happy and complacent wakefulness almost as refreshing as sleep. It was well that pleasure unnaturally obtained should have a penalty; and this was in the dryness of mouth, which seemed due to a total suspension of the secretion of saliva, and which became at last even less tolerable than restlessness. Locally, collodion, freely applied as soon as an erysipelatous redness appeared, gave great comfort. It did not hinder the spreading of the erysipelas; but it relieved the itching and heat of the eruption, and it prevented the horrid itching of the desquamation, which was intense, and was renewed for many days on exposure to air, at every place to which the collodion was not applied. These things were certainly beneficial; but I suppose that those which most helped me to a safe passage through the

illness were, a judicious moderate use of food and wine, and very wise and gentle nursing.

This erysipelas, it may be believed, was part of the effects of the poison of the dead body—an issue of the blood-poisoning. Not such, I think, was a pneumonia with which I suffered twice, and which added greatly to the risk and length of my illness. This was, probably, personal; due only indirectly, if at all, to the poison—due rather to a susceptibility of my lungs to the inflammatory process. For I had had acute pneumonia five times during the eighteen years before this illness. All these attacks occurred after severe over-work, with deficient food and exposure to cold; and the manner in which they have cleared-off, leaving my lungs unimpaired in structure, has made it nearly certain that they were rheumatic or gouty. But, however this may be, the pneumonia, of which one attack commenced only two days after the infection, and the other a week after the disappearance of the erysipelas, must be ascribed to me rather than to the poison. They passed through their usual course, and left my lungs sound again; but I ask your attention to them as an illustration of one of the ways in which a specific disease may be complicated or modified by the personal constitution of the patient. Here was an instance of what one may call a specific poisoning; and one of the first things following it was pneumonia. Associated as this was with evidence of poison in the lymph-glands, it might have been thought pyæmial, or in some way due to the specific poison in the blood. Yet it was only such a pneumonia as I might



have had without having been poisoned, or such as might occur in me in any feverish illness from whatever source.

Keep such facts as this in mind. They show that there is no disease so specific but that its signs may be confused or complicated with the things that are peculiar to the patient. Syphilis is a specific disease as sharply defined as any, but its course and appearance in a scrofulous man and in a gouty one are very different. Vaccination produces a well-marked specific disease ; but in one patient it may be followed by inflammation of lymphatics, in another by eczema, in others by various other troubles : but all these are due in only a minor degree to the vaccination ; they come out from the personal constitutions of the several patients which are disturbed by the vaccination, as they might have been by anything else producing some slight fever.

This is not a mere question of doctrinal pathology. It is among the first necessities for success in practice that, in the total phenomena of a disease observed in any patient, you should be able to estimate what belongs to the disease and what to the man. A farmer may as well expect success if he sows his fields without regard to their soils or to the weeds that may ' of themselves ' come up in them, as one of us may expect it if we treat diseases without exactly studying the constitutions of those in whom they occur.

Thus I have given a sketch of my three months' illness, and some of the thoughts which it suggested to me. But I ought to say that my case showed only one of many forms of disease that may be produced by the poisons of dead bodies. The suppuration of lymph-glands,

which I had many years ago, is another. But besides such as these, you may find cases of trivial local inflammation; of direct and simple erysipelas; of spreading, suppurating, or sloughing inflammation of the cellular tissue of the hand and arm; of pyæmia; and of the fiercest septicæmia. And it is remarkable that different effects may be produced by the same poison acting on different persons. Mr. Erichsen mentions a case in which six students were infected by the same body; 'two had suppuration of the areolar tissue under the pectoral muscles and in the axilla; one was seized with a kind of maniacal delirium; a fourth had typhoid fever; and the other two were seriously though not dangerously indisposed.' I advise you to read-up the subject in his '*Art and Science of Surgery*.'<sup>1</sup> He has given an excellent account of it; and so has Billroth in his and v. Pitha's '*Handbuch der Chirurgie*.'<sup>2</sup>

Sir William Lawrence used to say that he had not known any one recover on whose case more than seven had consulted. Our art has improved. I had the happiness of being attended by ten: Sir Thomas Watson, Dr. Burrows, Sir William Jenner, Dr. Gull, Dr. Andrew, Dr. Gee, Mr. Cæsar Hawkins, Mr. Savory, Mr. Thomas Smith, and Mr. Karkeek. In this multitude of counsellors was safety. The gratitude I owe to them is more than I can tell—more than all the evidences of my esteem can ever prove.

<sup>1</sup> Vol. i. p. 151, 5th edit. 1869.

<sup>2</sup> Bd. i. Abth. ii. Heft. ii. p. 79; Erlangen 1867.

### *QUIET NECROSIS.*

---

THE ordinary phenomena attending and following necrosis are well-known and described: the inflammation of all the textures about the dead bone, inflammation attaining an extreme intensity, spreading far, leading to suppuration, and attended with fever as acute as itself. In the midst of local inflammation, and with general feverish disturbance, the exfoliation of the dead bone begins, and usually suppuration continues till the exfoliation is complete and the dead piece is removed.

But all the essential parts of the process of necrosis, the death of the bone and its exfoliation, and the formation of new bone, may take place without any of the attendant phenomena of either inflammation, or fever; and the cases in which this happens, the cases of 'quiet necrosis' as I would call them, are of great interest in both pathology and diagnosis.

My attention was first fixed on these facts by a case which I communicated to the Clinical Society, and which is published in the Society's 'Transactions,' vol. iii. p. 183.

Emma L—— aged 19, a general servant, was admitted into St. Bartholomew's Hospital under my care, on October 12, 1869. She was well nourished, and muscular, and, except in

being rather pale, looked healthy. Her complaint was of severe pain in the left knee, for which she had been under treatment for a month. Her mother died of heart-disease, her father was rheumatic, she herself had been healthy till this pain in the knee set-in.

The knee-joint was very slightly swollen, with fluid in its cavity, but not hot or tender. What seemed more important was that a hard swelling of which the patient knew nothing nearly surrounded the middle of the shaft of the femur. This swelling felt of nearly oval form, about six inches in length; it was in every part very firm, and tense; hard pressure on it was very painful, especially at its middle part. All the textures of the thigh appeared quite healthy; no part of it felt hotter than another; no veins or lymph-glands were enlarged. The pulse was rather quick; but the breathing and temperature appeared natural; there were no signs of fever or general disturbance, and, but for the pain of her knee, the patient would have thought herself well. She could give no account of the swelling round the femur, except that it might be due to her frequently breaking thick pieces of wood across her thigh.

In the belief that the swelling round the femur was due to periostitis, the patient was directed to remain always in bed, to take three grains of iodide of potassium three times a day, and meat diet; blisters also were to be applied over the swelling often enough to maintain a constant slight inflammation of the skin.

At first some benefit seemed to be derived from the treatment; the swelling became rather less, and was not so tender on pressure. But the improvement was of short duration, and on December 2, the doses of iodide of potassium were increased to six grains, and a fortnight later to nine grains, three times a day. On each of these occasions the pain and swelling were for a few days diminished; but no real advantage was gained, and after being under treatment for three months the condition of the affected parts was almost exactly the same as when the patient was admitted. The pain in the knee had continued with very little change, but the swelling of the joint had sub-

sided. The general health also remained unaffected; during the whole of the three months she had not a chill, or a great heat or thirst or loss of appetite. . . .

In consultation it was decided that the periosteum at the seat of disease should be cut through. For it seemed nearly certain that the case was one of periostitis maintained by some confined source of irritation—pus, or ulcerated bone, or the like. It might be a low bony growth covered with inflamed periosteum, or with an inflamed bursa, or it might be a cancerous tumour; but this seemed too improbable for an objection against the proposed treatment.

On January 13, I made an incision about six inches long, in the outer part of the thigh, over the principal and tenderest part of the swelling. All the textures cut through down to the outer surface of the periosteum appeared perfectly healthy; there was not in any of them the slightest sign of inflammatory change. The periosteum was, in the portion divided, from one-third to one-half of an inch thick, and in all its thickness dense, tough, white, and moderately vascular. Between the periosteum and the bone, the incision laid open a flattened irregular cavity, from which a little blood-coloured fluid escaped, and was followed by the protrusion of some soft substance like coarse granulations. In this cavity, which was from an inch to an inch and a half in its diameters, was a thin rough sequestrum, separated from the wall of the femur, about an inch and a quarter long and a quarter of an inch wide. The walls of the cavity, of which the outer was formed by the thickened periosteum, and the inner by the hollowed-out surface of the femur, felt smooth and velvety as if covered with granulations like those of ordinary cavities containing sequestra.<sup>1</sup>

The sequestrum appeared to be derived, not from the outermost layers of the femur, but from layers just within them.

In another case a boy, 13 years old was under my care in

<sup>1</sup> The condition was very similar to that of a cavity with 'subcutaneous granulations' in a case of ununited fracture. 'Lectures on Surgical Pathology' 3rd Ed. p. 155.

St. Bartholomew's, with a large ovoid swelling round the upper part of the left humerus, which had slowly and painfully increased for about a year. It was thought most likely to be a firm medullary cancerous growth, but the doubts were enough to justify an exploratory incision. This was made through perfectly healthy textures till the periosteum was reached, which was greatly thickened, and covered some cavities containing thickened and half-dried pus, and several small sequestra from the wall of the humerus.

The condition found in these two cases is illustrated on a large scale by a specimen in the museum of the hospital.<sup>1</sup>

In the right femur and the left tibia of the same person, large portions of the inner layers of the walls of the shafts are completely separated after necrosis; but, in the thickened outer layers surrounding the sequestra, there are no openings for the discharge of pus. 'Under these circumstances,' as Mr. Stanley observes,<sup>2</sup> 'it is not to be expected that abscess and fistulous passages would form in the soft parts adjacent to the bones.'

A similar and very remarkable instance of necrosis of the shaft of the femur without suppuration occurred in the hospital last year, under the care of Mr. Baker, and will, I hope, be soon published by him.

All these cases are sufficient to prove that, however rarely, the whole of the customary processes of necrosis, short of the extrusion of the dead bone, may be accomplished quietly without evidences of inflammation. By a similar process we may explain the formation of some of the loose bodies in joints. Of these bodies there are two chief kinds. Some are abnormal out-growths of cartilages,

<sup>1</sup> 'Museum Cat.' vol. i., Subseries A, No 118, 119.

<sup>2</sup> 'Diseases of the Bones,' 1849, p. 79.

formed in chronic rheumatic arthritis, or in the dendritic growths of synovial fringes, and, as it were, accidentally detached. Others are portions of the proper articular cartilage, with or without some subjacent bone, which have suffered a 'quiet necrosis,' and been exfoliated into the cavity of the joint.

Mr. Teale<sup>1</sup> described this process of necrosis of cartilage. Being ignorant of his paper I published a similar account of the process in the 'Hospital Reports,'<sup>2</sup> adding to Mr. Teale's account only the fact that the microscopic structure of these loose bodies is identical with that of articular cartilage.<sup>3</sup>

I am unable to explain the conditions under which a process of necrosis thus widely dissimilar from that which is usual takes place. I suspect that the death of the piece of bone or cartilage is always due to violence, that the piece is killed, as a tooth may be, by a blow, and that as a tooth thus killed may be ejected or exfoliated quietly, without change of structure or any signs of destructive inflammation about it, so may the piece of bone or cartilage. But the facts yet known are too few to be sure on this point; and so, in the question of diagnosis, there are no distinctive signs of a quiet necrosis, but the chance of its existing should be kept in mind in all obscure cases of swelling on a bone.

<sup>1</sup> 'Med. Chir. Trans.' vol. xxxix, p. 31.

<sup>2</sup> Vol. vi.

<sup>3</sup> Some illustrative specimens are in the Museum of the Hospital (Ser. ii. 84, and Ser. xxxv. 55) and are described by the Editor in the 'Reports,' 1868.

### SENILE SCROFULA.

---

It is, I think, too often taken for granted that scrofula is almost exclusively a disease of the earlier part of life.<sup>1</sup> Doubtless, young persons are much more often the subjects of scrofula than are those of later years; but the old, *i.e.* people over 60, are, I believe, more often scrofulous than those between 30 and 50, and certainly are more often so than they are generally supposed to be.

The evidences of scrofula in the old are not only in certain diseases of internal organs to which a scrofulous origin may be probably assigned, but in the diseases of lymph-glands, bones, joints,<sup>2</sup> the spine, the testicles, and other structures which appear to be the 'seats of election' of scrofula in the young. There is not one of these structures in which I have not seen, within the last few years, instances of scrofulous disease in people more than 60 years old. The cases appear equally frequent in private and in hospital-practice, and no period of life is too far advanced for them; some of the most marked have been in patients above 75: one of them was in a patient 91 years old.

<sup>1</sup> The same error is in many minds respecting phthisis, even though many clear accounts of phthisis in the aged have been written.

<sup>2</sup> Note XVI.



The characters of scrofula in the old are, essentially, the same as in the young. I cannot, indeed, describe any striking peculiarities of form or features by which the scrofulous old persons may be recognised; but they are generally of weakly health, ready for disease, susceptible of it under comparatively slight provocation. They tell of weakly relatives, or of consumption in their families; or of their having been subject to marked scrofulous affections in early life, and of having survived a time of great delicacy of health, and then passed into a comparatively healthy middle age.

In its local features, also, senile scrofula agrees with that of early life, or differs only in its yet greater slowness and the more thorough degeneracy of the affected parts. The same slow softening of textures ensues; the same slow ulceration and slower healing, with pus containing granule-masses and granules rather than well-formed pus-cells.

But notwithstanding its likeness to so well-known a disease as the scrofula of young persons, the senile scrofula is sometimes difficult of diagnosis. In superficial parts, the skin and mucous membranes, the difficulty is usually between scrofulous affections and gouty. Between these, I believe that the diagnosis must be ensured by observing the co-existing constitutional characters, or other marks of disease. But this is often difficult: for gout and scrofula are often, by inheritance, so intermixed that the resulting condition can hardly be analysed.

In deeper-seated parts, as the lymph-glands, bones, and joints, the difficulty of diagnosis is more frequently between scrofula and cancer. In the young this difficulty

seldom occurs : for in them cancer is comparatively rare in the parts in which scrofula is frequent. In the old, the lymph-glands and the bones are as frequently the seats of scrofula as of primary cancer. In the old, therefore, the difficulty of diagnosis between these two diseases may be greater and more frequent than in the young ; but I think that the difficulty is commonly due, in some measure, to our expecting to find cancer rather than scrofula in old persons. The regularly increasing frequency of cancer as age advances, *i.e.* its increasing frequency in proportion to the number of persons living at each advancing age, is well known : and this knowledge gives some prejudice in favour of believing that a swelling in an old person is very likely to be cancerous. Scrofula, on the other hand, is often presumed to be very unlikely. I believe that if it were generally admitted to be not very unlikely, the difficulty or hesitation in making out its existence would nearly cease.

Some general rules for the diagnosis, however, may be kept in mind.

In the cases of doubtful diseases of the bones or of doubtful swellings not glandular, the scrofulous affections are generally inflamed, however lowly ; the cancerous are not so. Tenderness and heat are indications of scrofula rather than of cancer, and are rarely absent at and about a scrofulous bone at whatever time of life ; with cancer they are present only when the diseased part is casually inflamed.

Spontaneous pain—that is, pain independent of movement or pressure—indicates, if severe, cancer rather than

scrofula ; but it is a very fallacious sign, especially in the early periods of either disease.

Redness over diseased bones tells of scrofula more than of cancer. When present with scrofulous disease in the old it is duskier and less ruddy than in the young ; not only because of the less brightness and probably slower movement of the old blood, but because of the deeper colour of the epidermis, which, with its brown pigmental degeneration, partially veils and shades the colour of the blood beneath it.

In the diagnosis between scrofulous and primary cancerous lymph-glands in the old, the chief things indicative of cancer are hardness or at least great firmness of substance, close-clustering, deep-seated attachments, pain, and quick increase. The opposites of these conditions, especially when tenderness and external redness are added to them, commonly signify scrofula. In the cervical lymph-glands, which, in old persons, are the most frequent seats of both scrofula and cancer, the lower glands are most frequently scrofulous, the upper ones cancerous ; the soft primary cancerous disease is very rare in the old, and not so rare in the young ; the soft scrofulous disease or simple hypertrophy which is frequent in the young is very rare in the old ; the cancerous disease in the old is often secondary to some comparatively trivial primary disease ; the scrofulous is very rarely so.

Respecting the treatment of senile scrofula little need be said. I believe that whatever is useful for scrofula in the young is, not indeed useless, but less useful in the old. As age advances, all medicines that act by increasing the activity of organic processes become, as it seems, less

potent : and so iron and cod-liver-oil and iodine have comparatively little influence. Even high mountain-air and sea-air become, as age advances, less invigorating, and the more so the more the old age is attended with infirmities that hinder active exercise.

### *SCARLET FEVER AFTER OPERATIONS.*

---

THE boy lately operated-on for stone had scarlatina; at least, an eruption exactly like that of scarlatina appeared over nearly the whole surface on the day after operation with general febrile disturbance. Two days later it began to fade, and in a few days had disappeared, and left him in about the same state that we may suppose he would have been in if no such illness had occurred; all went on well for a month, the wound was nearly healed, and he was deemed convalescent, when perhaps in consequence of exposure to cold, he had severe pain in passing urine, and evacuated with it a considerable quantity of blood from the kidneys, and tenacious mucus. Two days after this he had sore-throat, then an eruption like scarlet fever again appeared: it continued for three days, and was succeeded by desquamation. The urine in about ten days had gradually regained its natural condition, and he again seemed well. But now whooping-cough set in, and again retarded, though it did not finally prevent, recovery.

If I had never seen a case similar to this I should have hesitated to call it scarlatina; for the symptoms of the first attack were very incomplete, and those of the

second were unusual and disorderly. But I believe the case was really one of scarlatina modified by the circumstances in which it occurred : and that it may be reckoned with other similar cases in illustration of some interesting general principles.

About this time last year, when scarlatina was very prevalent, I saw six cases after operations in private practice, I have notes of four more that occurred either before or since, and I have heard of many more. By some, these cases may be supposed to have been only casual coincidences of scarlatina with surgical diseases ; but if they were so, we ought to find a proportionate number of cases among surgical cases not operated-on. But this does not happen. In private practice I do not remember to have seen scarlet fever supervene in any surgical cases, except those in which operations had been performed ; and in Hospital-practice, I doubt whether it is much more frequent among all the other patients taken together than it is in those who have been operated-on. I cannot, therefore, doubt that there is something in the consequences of surgical operations which makes the patients peculiarly susceptible of the influence of the scarlatina-poison. And, together with this susceptibility, we may observe that the disease undergoes in them certain modifications, especially in the period of incubation, which is much shortened. In all the ten cases that I have noted, the eruption appeared within a week after the operation, and in eight of them within three days after it, namely in two cases on the first, in three in the second, and in three on the third day.<sup>1</sup> Other deviations from

<sup>1</sup> Note XVII.

the typical course of scarlatina were that, in some of the cases, the eruption came-out over the whole surface at once, and on the limbs more fully than on the face and chest; in some there was no sore-throat; in others no desquamation.

The cases are not numerous enough to determine the import of these various deviations from the type of scarlatina, but that in which all of them, whether complete or incomplete in other characters, agreed, namely, the very early period after the operation at which the rash appeared deserves particular notice. It adds to the evidence that the appearance of scarlatina is in some way connected with the early consequences of operations. If it were not so, there would be no reason why the eruption should appear early, rather than late, after the operation; but, so far as I have seen, it always appears early, always within the first week.

Two explanations may be offered of this fact. Either the condition induced in a patient by a surgical operation is one that gives a peculiar liability to the reception of an epidemic or contagious morbid poison, and any one of these, being imbibed immediately after the operation, produces its specific effect in much less than the usual period of incubation: or else those who suffer with scarlatina within a few days after operations had previously imbibed the poison, but would not have manifested its effects so soon, if at all, unless their health had been exhausted or disturbed. The second of these explanations appears rather the more probable; for it is in accordance with what has been observed when many persons have

been exposed to the contagion of fever and some have been afterwards exhausted by fatigue or otherwise. These have had fever; while those who rested after exposure have escaped it.

But, whatever explanation may be given, the fact of the peculiar liability to scarlatina after operations seems certain, and may be important in relation both to the pathology of the disease and to the risks of surgery.

In one of the cases which I have seen it was fatal; in another it was followed by fatal pyæmia: and I think it not improbable that, in some cases, deaths occurring with obscure symptoms, within two or three days after operations, have been due to the scarlet fever-poison hindered in some way from its usual progress.



*NOTES FOR THE STUDY*  
OF SOME  
*CONSTITUTIONAL DISEASES.*

---

I OFTEN wished to give some clinical lectures on constitutional diseases, especially on those which are inherited, and through inheritance subject to many and wide variations from what are regarded as their typical forms. These notes are the collected fragments and failures of many attempts so to express what I believe on parts of the subject that it might be possible for students to listen to me for an hour at a time. I convinced myself of my inability to teach the subject orally ; and I am doubtful whether I have written anything worth reading.

The study is beset with much greater difficulties than, at first thought, appear. The sufficient materials for it exist only among patients whose health can be observed through many years, and whose family-histories can be learned. Of such patients, a sufficient number and variety can be found only in some large general practice among the richer classes of society : but the few who attain such a practice soon find that its duties are too laborious to allow time for any careful record of the facts they learn. In the incomplete study of the subject in surgical practice one can gain only very incomplete knowledge ; but since what I have gained may not be all inaccurate, or all useless, I venture to publish some of what I believe to be true.

The knowledge of the chief inherited constitutional diseases, as of gout, tuberculosis, scrofula, in what may be regarded as their typical and complete forms, is nearly as

good as any yet attained in pathology. But it is far different with the study of these and other less marked constitutional diseases in the more numerous instances in which they exist in less complete forms, or are mingled and confused with one another, or with the effects of injuries and accidental diseases. In reference to all these the facts are, for the most part, so vague and undefined, so confused and apparently inconstant, that it has often seemed to me useless to pursue them. But, more often, I have felt sure that there is great value in the study of even the least signs of constitutional disease: and that, although we may never attain to a scientific precision or completeness of knowledge in the matter, we may, with care, gain a large quantity of information which may help to right diagnosis and right treatment of diseases.

If this seems doubtful, consider the success with which a somewhat similar study is pursued.

Each man's constitution is to be studied in the whole character of his health, both bad and good; in the same sense as that in which character is studied in relation to any one's mental or moral condition. And we may observe a parallel between the study of constitutions in men's health-characters, and that of their minds in mental or social characters. Each man's mental character is derived by inheritance, through we know not how many generations, or with what variations and confusions: and in each man this natural character is susceptible of modification, not only by education and all the circumstances of life, but by that which may be the strongest of its components, self-will.

I suppose that, if we could count the elements of

which minds are constituted, they would be at least as numerous as those that make up the constitutions of our bodies. The minds derived from their combinations are so numerous and so various that they do not admit of any precision of classes or names. Yet, a practical knowledge of them may be gained with singular exactness. There are men who are, as it is said, excellent judges of character. With observation of demeanour, of expression and of occasional conduct, and perhaps some study of each man's history in life, or of his descent and family-relations, they can ascertain the most important features of the mental character of nearly every one who comes before them. They can hardly tell how they do it ; they cannot make a science of their knowledge ; and yet for practical life they commonly surpass those who can write excellent essays on the human mind. They learn the general character, or the most prominent and influential part, of each man's mind ; what chiefly guides his conduct ; what in him may be most easily acted on ; and with this knowledge they make their diagnosis and guide their practice.

Similarly, and with more care and labour, have we to study constitutions in the personal health-characters of all our patients ; not only of those whose unhealthy constitutions are signalised in some typical form of disease, but of those who to the unobservant may seem nearly well, or indefinitely ill, or, at the most, only locally unsound. And I am sure of this ; that as the justly successful members of our profession grow older, and probably wiser, they more and more guide themselves by the study of their patients' constitutions, learning more of family-

histories, and detecting constitutional diseases more skillfully in signs which, to others, seem trivial.

#### MEANINGS OF NAMES.

I say meanings rather than definitions, for when knowledge is very incomplete we cannot exactly define all the words that we may use.

By constitutional diseases are generally meant morbid conditions which affect the whole method of life and indicate themselves by distinctive local morbid processes.

The inherited constitutional diseases, of which almost alone I propose to speak, are those in which morbid conditions affecting the whole method of life in parents are reproduced in their offsprings. In some persons the morbid conditions are evident throughout life in characteristic forms, complexions, peculiar relations to food or to injuries, or in other signs, such as are seen in well-marked instances of scrofulous, tuberculous or rachitic persons. In others, there may be the appearances of complete health till the morbid constitutional condition indicates itself in one or more local diseases, in which it is then said to be manifested or localised.

The condition preceding this local manifestation of constitutional disease is commonly called a constitutional tendency or disposition to disease. Diathesis and dyscrasia mean nearly the same : and temperament has, I think, part of the same meaning ; but this word is commonly used with epithets so strange that I think it best to avoid it altogether.

By constitutional disturbance or disorder is generally understood a general and pervading disorder of the

whole health excited by some local morbid process, such as that in an irritated or inflamed wound.

I shall keep to the words with these meanings without professing more than that they are convenient.

CONSTITUTIONAL TENDENCIES OR DISPOSITIONS  
TO DISEASE.

These are not to be thought of as unreal or accidental things. Rather they are progressive changings, growings-up towards complete and evident disease. Sometimes the progressive changings are not discernible; sometimes they are declared by some of the lesser diseases significant of morbid constitutions. And it is this method of progressive changing which is transmitted from parent to offspring: for a parent may transmit to children a tendency to gout, or phthisis, or any other heritable constitutional disease, long before his or her self has shown any clear signs of it. A parent may 'die and make no sign,' long after transmitting to offspring such tendencies, such methods of organic change, as in them, or some of them, will surely lead to the development of a disease which the parent has not displayed.

It is well to be sure of the reality of the progressive changes by which what we call a constitutional disposition or tendency becomes what we call a constitutional disease, and that the two names, like 'boy' and 'man,' mean the same thing in different stages. For the method of life in each constitutional disposition must be, at any period, characteristic, though its distinctive characters may be beyond our present powers of discernment. In any two children, for example, or in any two embryos, one a

product of healthy parents the other of tuberculous parents, however like they may appear, there must be even now dissimilarity. In the same measure as they are now becoming constantly more unlike each other, in becoming severally more like their parents, in personal appearance and mental character, so are they becoming constantly more unlike each other in their dispositions or tendencies towards health or disease. The future difference is not more certain than the present, though it will be more evident. The future is potentially in the present state; in some material quality not the less sure because not yet sensible. I say 'not yet,' in the full expectation that minuter study will bring the knowledge of many things characteristic of constitutional dispositions which we at present overlook or cannot see.

Moreover, it seems right to hold that the differences among persons of different constitutions pervade every part and process of their several lives. As matter of fact, it cannot be shown that, in every instance of a constitutional disease, even in its complete form, and when it affects many parts at once, the whole method of life does deviate, in some distinctive manner, from what may be regarded as the method of an ideal perfect health. But this is very probable: and in theory it is well to hold that in each constitution all things are consistent, and, therefore all characteristic. Certainly, it seems at least very probable that, for example, in a gouty person nothing is and nothing works exactly as in a scrofulous person, or as in a completely healthy one; and that the differences, which we may hope that some of our successors will discern, are as characteristic during the time of

constitutional disposition as during the complete disease.

Similarly in the cases of constitutions which take their names from the dominant error of one constituent of the body, as in the nervous or neurotic, and in the cold-blooded (so-called), it seems most probable that all the other constituents are consistent with these, and, if we could discern them, would be found different from those in other constitutional diseases.

It seems to me better thus to hold a large, even a vague, theory of the differences of constitutional conditions, than to narrow our thoughts about them by holding that, in any case, all which is constitutional is in the blood, or the nervous system, or any other structure which, in substance or in influence, pervades a man. Doubtless, the blood and the nervous system, the connective tissue and the lymphatics, pervading as these do nearly every part, have very large shares in a constitution, and defects and diseases in them would so quickly and so greatly influence the whole, that a disease if it could be in any one of them might, without serious error, be spoken of as constitutional. Still, it is not right to regard any one of these, or all of them together, as the sole factors of a constitution : for, in some cases, as much might be said of a single organ. When some disturbance of the action of the liver or the kidney gives a distinctive character to every process in the economy, either of these organs might be thought to determine the whole constitution. But though the influence of the blood or of the liver may be everywhere, yet neither blood, nor liver, nor any thing else is everything : a constituent is not a constitu-

tion. A constitution should not be thought of as less than the sum of all those intrinsic things from which a whole health-character is derived.

#### VARIATION OF CONSTITUTIONAL DISEASES IN HEREDITARY TRANSMISSION.

It seems probable that in embryo-life there is, generally, a tendency to recovery from the morbid conditions transmitted from parents: a tendency to revert to the true healthy type of structure and composition. Such a tendency would be in accordance with the general rule of tendency to reversion from all variations of specific characters: and would be part of that tendency to recovery of health which suggested a *vis medicatrix nature*, and which we may observe throughout life, diminishing as age increases, yet never quite lost. If such a tendency to recovery did not exist in great force in the embryo, we should have to expect a far more rapid destruction than we see of families and races by such diseases as cancer, tuberculosis and scrofula. Believing in its existence we might expect what, on the whole, we generally see; namely, that in transmission an inheritable disease loses in force, many children escaping altogether, and many displaying the disease in its less severe and less typical forms. The tendency to recovery is, we may believe, the greater when one of the parents of the embryo is healthy, so that the constitutional disease of the other may be, in a manner, diluted. Through such dilutions and such tendencies towards recovery of health in embryo-life, and in a less degree after birth, we may believe that many of the lesser constitutional diseases are derived;



but of the rate of diminution in transmission, and of the possible changes of form associated with changes of intensity or quantity of disease, we know very little, if anything. And very little we know of the results of the transmission of more than one constitutional disease to the same offspring. But we can often see plainly that the forms in which different persons display a constitutional disease appear very different from those seen in their parents. Thus, in a family of which one or both parents had typical gout or tuberculosis or scrofula, there may appear any number of the lesser forms of those diseases, or of the forms deviating furthest from the type. And yet a certain general similarity may appear in all the local manifestations of each constitutional disease thus variously transmitted. They may be unlike in structural appearance while affecting different structures; and yet they may be like in their time-work, or in the production of some characteristic morbid product, or in the influence which medicines or diets exercise on them. These things may prove the same constitutional origin in apparently very different local diseases.

It may be observed, for a safe rule in pathology, that, when any heritable disease appears in different organs or textures in different members of the same family, it is probably constitutional. The rule is illustrated in most gouty, scrofulous, and syphilitic families, and is available in evidence of the constitutional nature of cancer: for cancer, when it happens in many members of a family, is not tied, as each other morbid growth is, to one part or texture.<sup>1</sup>

<sup>1</sup> Lectures on Surgical Pathology Ed. 3. p. 794-5. Trans. of the Pathological Society Vol. xxv. p. 319.

## EVOLUTION OF DISEASES.

The study of the variation of constitutional diseases in hereditary transmission may lead to knowledge on a subject of singular interest,—the evolution of diseases. We are ready to speak as if we believed that the heritable diseases in our pathology were always such as they are now. But there is no sufficient historic evidence for this belief, and the general rule of variation of forms in hereditary transmission makes it improbable. I think, indeed, that historic evidence would support the belief that in some instances, even within the life of history,<sup>1</sup> diseases have been greatly modified in hereditary transmission;<sup>2</sup> that some which were once prevalent and well-marked can now scarcely be recognised, while others, if they existed at all in times far off, existed in some form very unlike what we now see. But, even if I had skill for reading history, I should suspect that no ancient records would be sufficiently minute to justify our founding on them any useful pathological belief. I think that the best chance of finding truth concerning the evolution of diseases is in endeavouring to discern the relations between the varieties of form in which the same or allied diseases appear in different members of a family, either in the same or in successive generations.

<sup>1</sup> 'History was born on that night when Moses led the children of Israel out of the land of Goshen.'—Bunsen's 'God in History.'

<sup>2</sup> For instance, I should have believed that leprosy, which was once common in England, is now fading-out in the various forms of keloid, scleriosis, and other allied skin-diseases, if it were not that Dr. Fagge, who has studied the subject with an admirable care, is against this belief.—'Guy's Hospital Reports,' 1868, p. 325.

The chance of finding exact truth is, we may admit, very small; the smaller because, in any group of cases that we may study, there will, probably, be some in which disease is become greater, deviating further and further from the type of health, and some in which it is becoming less through the constant tendency to recovery of health and reversion to the type. If this be so, we must expect to find in the same family examples of both the evolution and the involution of disease: the one a series of forms receding from the type of health, the other a series of forms returning to the type, and the two, if not quite alike, yet very hard to distinguish from each other. Still, since we may be sure that there is truth somewhere, we should seek it with all our might.<sup>1</sup>

The fact (as I think) that, in members of cancerous families, not only recurrent tumours and rodent ulcers are much more frequent than in other families, but fatty tumours and harmless warts and nodular growths of skin, may be explained on a theory of evolution of disease.

Similarly, we may explain the frequency of the whole group of lithic acid diseases in the families of the gouty. We may fairly doubt whether any external condition or any mode of life could produce complete gout in one having no hereditary disposition to it. But we may fairly believe that excesses of nitrogenous food, with beer or other fermenting drinks, continued through several

<sup>1</sup> The wonderful facts discovered by Brown Sequard, and briefly related in his paper 'On the Hereditary Transmission of Effects of certain Injuries to the Nervous System,' in the '*Lancet*,' January 2, 1875, are enough to encourage enquiries in all directions, even in those which seem least likely to lead to truth. Who would have thought it possible that the division of a guinea-pig's sciatic nerve could lead to the production of offspring toeless, with outstanding eyes, epileptic.

generations, will accumulate the conditions of the lithic acid diathesis till they culminate in complete gout. And we may believe that different members of any family in which this process is going-on, or has been achieved, will present as many different examples of the lithic acid group of diseases.

Further, I will hazard a guess, if only for illustration of the study of evolution of disease which I want to recommend; that the evolution of cancer in many generations may be studied in the whole group of hereditary morbid growths. We may begin with cases of monstrosities by excess, such as those of supernumerary ill-formed fingers, among which are some that recur once or more after removal. These are hereditary and no hard line of distinction can be drawn between them and the fatty, glandular, and cartilaginous over-growths, which deviate from the body's type in shape, yet are not defined in outline, as are tumours, and are not unlimited in growth. These, again, cannot be separated by more than arbitrary verbal definitions from the tumours composed of similar structures which are, indeed, separate and circumscribed growing overgrowths, but are very rarely found imbedded in structures unlike their own, and very rarely recur after excision, and very rarely multiply themselves by growing into bloodvessels or lymphatics. The gradual differences among these hereditary growths are not more than are common among the well known variations of specific forms in domesticated animals and plants.<sup>1</sup> And it is no abrupt step from these and the like tumours, the 'inno-

<sup>1</sup> It seems hardly necessary to say that my suggestions respecting the evolution of diseases have come through a study of Darwin's works.

cent tumours' of clinical surgery, to the recurrent tumours, which are composed of the same structures in embryonic forms (spindle-cells, round cells, and the rest), which recur after removal, and not very rarely grow into, or detach cells into, the blood-vessels or the lymphatics, and thus, in a measure, infect the blood and are generalized. From such a disease as this we may imagine that further variations in many hereditary transmissions would bring-out cancer, apt to grow in any parts, with structures even more elemental than the embryo-structures of the recurrent tumours, always recurring after excision, always infecting lymph and lymphatics and through them, or more directly, always infecting the blood.

But if the evolution of cancer may be guessed at in a series of diseases such as this, then we may expect that, among the recurrent and other tumours that we see in families in which cancer also occurs, some are instances of its involution, instances of forms of morbid growths in process of gradual reversion to the healthy types of shape and structure.

I hazard another guess:—that syphilis, of the existence of which there are some vague hints in records soon after the 'birth of history,' may have begun anywhere or in many places in multiplied and mingled uncleannesses, and that its forms may have changed through changes in the susceptibilities of those descended from infected ancestors, till we can hardly recognise in what we see the likeness of what was long ago described. And although I am not nearly ready to believe, as some do, that all scrofula is derived from syphilis (I could as soon believe that all rheumatism is so derived), yet I cannot

doubt that some of the diseases commonly grouped with scrofula are forms of syphilis varied by inheritance, and that these diseases are again variable in either direction towards greater disease or towards health.

These are mere guesses : but they are good enough for illustration of a belief in the evolution of heritable constitutional diseases ; a belief which will not be proved to be absurd by any proof of the absurdity of my illustrations. Whatever may have been the beginning of each of these diseases, whether in some changes produced by external conditions, or in some falsely called casual malformation, it is most probable that the forms in which they now appear have been attained through a long series of changes. Processes of gradual evolution through similar forms may be even now going-on, and processes of involution, or gradual return to health : but I do not believe that, through any external conditions whatever, and independent of inheritance, any one can become the subject of cancer, gout, tuberculosis, or any of the diseases allied to them. External conditions may hasten the appearance of such diseases, determine their seat, and variously modify them in the person affected, but seem to me utterly inadequate to originate them.

#### EVIDENCE OF INHERITANCE.

When any one says that no instance of this or that disease has ever occurred in his family, the statement is scarcely worth recording, even though it be made with much more than usual consideration. Very few persons have a clear knowledge of the healths of their four grand-

parents, and I never found one who knew anything useful about the healths of his eight great grandparents ; to say nothing of the sixteen of the previous generation. Yet, from any of these, or from other still more remote ancestors, any disease, or any considerable feature of a constitution, may be derived. Thus derived a disease may appear, as true leprosy sometimes does among us, like a novelty, inexplicable and causeless, or it may be erroneously ascribed to some external cause. We may believe that the probabilities of inheriting a disease decrease as the distance from a progenitor in whom it occurred increases ; but we know nothing of the rate of the decrease, and the probability of inheritance does not fall to zero in any such number of generations as we are practically concerned with. There is, therefore, very little if any value in any negative evidence against a disease having been inherited.

I wish this were not true, for I am conscious that, like Brown Sequard's facts just cited, it leaves one too free to guess at the inheritance of diseases : but it is true, and we must use cautiously the liberty of guessing.

I may here notice a common error of expression which would imply that all qualities inherited are also constitutional. For instance, one hears people say that their inability to digest this or that, or to bear some manner of life, or some kind of air or water, or to exercise some manner of thinking, is constitutional, because it is inherited. It may be so ; but, just as likely, it is only an inherited likeness of stomach, or bowels, or lungs, or brain : for family likeness of course involves a likeness of internal organs just as much as of external ones. A man

may have a stomach like his grandfather's just as he may have a nose or a mouth like his grandmother's; but neither of these would alone signify a constitutional inheritance. Neither would the inheritance of an admirably organised pulmonary tissue, any more than that of a charming complexion. Such inheritances are, indeed, important in clinical study: but they must be studied as personal and local peculiarities, not as constitutional.

#### MUTATIONS OF LOCAL AND CONSTITUTIONAL DISEASES.

It is often said that local diseases tend to become constitutional and constitutional to become local; and there is sufficient seeming truth in this to add to the difficulty of defining the two groups.

But the expressions are seldom exactly true. It is true that few, if any, local diseases or injuries can exist long without producing some constitutional disorder, some morbid condition of the whole economy; and in this way it is said that the local becomes constitutional. But it would be more proper to say that the local disease or injury *produces* a secondary constitutional disease, a consequence rather than a continuance of itself. A local disease may be said to *become* constitutional when its materials pass into blood-vessels or lymphatics and are carried unchanged to any or all parts, and in them multiply or grow. Thus a cartilaginous growth, or any of the softest recurrent tumours, may generalise itself and become constitutional; but these are comparatively rare events and accidental.

On the other hand when the chronic rheumatic arthritic disease has appeared, or, as it is said, 'settled' in



a hip-joint (for example) it seldom attacks any other joint with severity if at all: and thenceforward it may seem as if it were a simply local disease. The local morbid process alone may now vary, and the constitutional disease may seem satisfied or determined and ended in a single local manifestation; as if it had *become* local. But these cases, again, are comparatively rare and may be fallacious. The more common course is that a disease loses little or none of its constitutional character in local manifestations, or loses it only for a time, as we may suppose in the cases of gout in which general relief is felt during or after a local attack. And the most common course is that, the constitutional disease abiding or increasing in intensity, its local manifestations accumulate: as in gout, or chronic rheumatism, crippling one joint after another, and every year attacking some old or new part; or as in scrofula, in which one sees wretched children with eyes, ears, nose, lips, bones, joints and other parts successively attacked and all continuing unhealthy till the children die, or till, with increasing age, the intensest period of the constitution may be passed.

#### THE LESSER SIGNS OF CONSTITUTIONAL DISEASES.

Some constitutions, as I have already said, when they are well marked, may be discerned by general aspect or habits, or by singularities of health, or of repair of injuries; but, generally, each morbid constitution is to be clearly discerned only in localised diseases which are characteristic, either in some morbid product or in some method of morbid process.

Each of the chief morbid constitutions has, for its signal and complete evidence, a certain localised disease, regarded as decisive; a pathognomon. Gout has the typical transient acute inflammation of joints, especially at the great toe: tuberculosis has the tubercular pulmonary phthisis: rickets the ill-developed and ill-grown bone too readily bending: the lithic acid diathesis, and the oxalic have their several characteristic urinary deposits; and so on. Similarly, syphilis, whether inherited or acquired, has its distinctive localised signs; distinctive in the same degree and meaning as are the local evidences of fevers and the like pervading diseases.

Commonly, patients are not called gouty, tuberculous, or by any similar name, till they have proved their claim by suffering some typical local disease; but in this there is more of convention than propriety; for they may deserve their names as truly before and after as during the full evidence of claim. For, in all these cases, the local morbid process is a sign, not only of a temporary localised disease, but of a life-lasting general method of work in the whole economy, a method which has been going-on to the time of the local disease and will, probably, continue after it.

Consistently with this, each morbid constitution is apt to give to what may be called common disease such as may be excited in healthy persons, and to the consequences of injuries, certain features of its own, by which the common morbid process is modified in time, or method or results. Hence we speak of gouty, and of syphilitic, and of scrofulous 'inflammation' of joints and bones and other parts.

But, further, most of the chief morbid constitutions are indicated by lesser localised diseases which, singly, may be less characteristic, but, in their combinations, whether in one person or in many members of a family, are not less characteristic of the constitution than is the pathognomon, the signal or typical localised disease. A man may never have had enlarged or suppurated lymph-glands discharging curdy pus, and slowly healing with red-banded and barred scars, yet, if in various periods of his life he has had pustules by the edge of the cornea, frequent impetigo with swollen glands, swollen mucous membrane over the lower turbinated bones, periosteal swellings of phalanges, chronic thickenings of synovial membranes, otorrhœa, or any few of these, he may justly be called very scrofulous, and scrofula may be suspected in any localised morbid process in him. Or, if these diseases are known to have occurred singly or together in many members of a family, we should look-out for scrofula as an element of whatever disease may appear in any member of that family.

Similarly, if a patient has had ‘dyspepsia more or less troublesome, frequent deposits of lithates, slight eczematous eruptions from time to time, anomalous pains in various muscles, sharp deep-seated pains in the tongue existing for two or three days and then disappearing altogether for a while, crackling about the cervical spine on slight movements, more or less, sometimes a mere suspicion, of knottiness about the smaller joints of the fingers,’ we may be nearly as sure that he is gouty as if he had had the most typical gouty inflammation at the great toe. For all these lesser diseases, which I quote from an enu-

meration by Mr. Prescott Hewett,<sup>1</sup> are especially prevalent, if not exclusively found, in those who, at some time of life, display the more signal local manifestations of the gouty constitution, or in members of the same family with them.

But the question constantly arises, and it would be of immense value if we could always answer,—which, if any, of all these and other lesser diseases may be held singly sufficient for the diagnosis of a constitution? For some of them it is very hard to answer, but for some I think there seldom can be doubt. Thus, for gout, besides those already mentioned, the nodules in the ears, formed by urate of soda in the fibrous cartilage, are, I believe, completely characteristic. Not less so, I think, are the nodular enlargements of knuckles frequent in elderly persons who, though members of gouty families, may have been free from any more acute form of gout, and may even not show this till very late in life. Thickening of the cutis, with subcutaneous bursæ over the knuckles, chiefly between the first and second phalanges of the fingers are, I think, seen only in the gouty, unless when they are due to some habitual occupation. Similarly characteristic, but subject to the same ‘unless,’ are thickenings of the palmar fascia adhering to the cutis and producing contraction of the fingers. I cannot remember to have heard any patient complaining of spontaneous pain in his tendo Achillis, except such as I knew to be by inheritance disposed to gout or a lithic acid diathesis. Pain in the heel of an elderly person has, generally, the

<sup>1</sup> ‘Trans. Clinical Society,’ vol. vi. p. xxxvii. 1873.

same meaning ; and so have frequent erections at night waking from sleep and long persistent, and not connected with any sexual feeling. 'Burning soles,' and the less frequent 'burning palms' generally signify a gouty constitution or one closely allied to it ; and so do the sensations of hot, tingling, and burning patches of the skin of the thighs, without external appearance of redness or eruption. Some persons have, at times, their only indication of a gouty inheritance in a single patch of dry eczema (if this contradiction of terms may be allowed). Edward Jenner had such a patch in which he noted changes coincident with variations of his general health ; and I often saw with such an one on his leg a gentleman whose father, uncle, cousin, and other relatives were typically gouty, and in whom the spot was affected for the better or the worse by all those things which the thoroughly gouty generally find to be good or bad for them.

I think I might safely enumerate several more small ailments significant of the gouty constitution ; but these may suffice. Trivial as they may seem, there is not one of them but may help the diagnosis of obscure affections occurring in the persons in whom they are or have been ; and there is not one of them that can be cured, if at all, without recognising its constitutional origin.

It seems probable that with careful study we might discern as many lesser signs of other constitutional diseases as of gout.

In the tuberculous and scrofulous many minor affections are seen. In scrofula they are, generally, more uniform than those in gout, in that they all display the

characters of slowly progressive and long abiding inflammation, provoked by less causes than would excite inflammation in healthy persons, and that in the inflammatory process many tend to the production of 'cheesy' matter. When these characters exist, even in trivial instances, scrofula may be discerned, and even without these there are certain instances of it.

Permanent incisors with their borders barred, crenated, thin, and brittle are, at least, very suspicious, unless they can be clearly referred to the defective nutrition attending some casual long illness in infancy. The swollen, puffed, and congested mucous membrane over the lower turbinated bone is, I think, always characteristic of scrofula in children. Equally so is the long abiding ozæna of later but still early life, with frequent or daily discharges of scabs. Allied with this, and like it a sign of the scrofulous constitution, is the general swelling, with glandular enlargement of the whole naso-palatine mucous membrane. The granular pharynx, with its lining membrane more or less thickly scattered with prominent glands, looking like the first part of the duodenum with the Brunn's glands, is, I believe, significant of tuberculosis. And there is a form of perforating ulcer of the nasal septum which I believe that I have never seen except in a member of a tuberculous family. It makes an oval or circular opening, about half an inch in diameter, through the centre of the cartilaginous part of the septum, the cartilage being first removed, then the mucous membrane; but beyond this extent it very seldom proceeds, unless in those who are syphilitic as well as tuberculous.

I presume that this perforating ulcer is an instance of

Lupus exedens, a generally scrofulous or tuberculous disease wherever it may occur, whether in the face, vulva, or uterus; and I suppose that the simple perforating ulcer of the stomach may be placed in the same group as a disease of the tuberculous.<sup>1</sup>

In the further study of the lesser signs of constitutional diseases, the design should be to arrange groups of diseases significant, each in its measure and degree, of the several constitutions. As yet such groups cannot be well defined; but the confusion and defects of our diagnosis would be even greater without such groups as we have than with them. Perfect groups might be arranged, if we could gather facts enough, by making each group consist of those diseases which occur exclusively, or most frequently, in the lives of some hundreds of those persons, or families, in whom a single typical constitutional disease is well marked. And in the selection and study of these lesser diseases we must not be afraid of looking too low, or to things that seem trivial. If, for instance, a man can never drink port wine or beer without being made ill, this is not a trivial fact. Nothing is trivial which is natural; and it may be well to remark that we are very imperfect judges of what is less and what more important among the signs of constitutional diseases. We are too ready to be guided by what we regard as types and good specimens; a readiness which has led to manifold errors in both natural history and pathology.<sup>2</sup>

<sup>1</sup> I have not attempted to distinguish tuberculous from scrofulous diseases. Among surgical cases the distinction seems to me impossible, and in inheritance even the most marked forms seem interchangeable.

<sup>2</sup> On the subject of this section and, indeed, on the whole subject of Constitutional Diseases, Mr. Gant's '*Principles of Surgery*' should be studied.

THE DISCOVERY OF CONSTITUTIONS BY INJURY AND  
DISEASE.

Among the least evidences of constitutional disease, which are yet of high importance in surgery, are some of the instances in which such disease is discovered or brought-out by local injury or general disturbance of health, as in fever or mental distress. It is a mark of a constitutional disease being highly developed when its local manifestations appear without any adequate external cause ; when, as the common expression is, they ‘come of themselves,’ or after some trivial disturbance such as healthy people bear with impunity ; and when they abide long after the external or exciting cause has ceased to act.

But there are many persons in whom slight injuries or slight general disturbances of health bring-out no signs of constitutional disease. These are reputed healthy ; yet they display the evidences of constitutional disease when their nutrition is seriously impaired either generally or locally. Speaking roughly, the intensity or quantity (I know not which best to say) of a constitutional disease or disposition to disease may be estimated as in an inverse proportion to the amount of disturbance requisite to permit or bring-out its local manifestations. In the most scrofulous children, for example, the lymph-glands enlarge and threaten suppuration at degrees of irritation such as in healthy children would be unobserved : in some, every scratch ‘fester ;’ in some, every strained joint inflames.

In the great majority of cases it may be suspected that when an injury, which has been wisely treated, is not



recovered from in due time, *i.e.*, in the time usual in healthy persons, it is because of some constitutional disease, or of too long disuse. Of the latter I have spoken in another lecture; of the former you may see cases every day. A man sprains his ankle and, soon after, there appears, at the place of injury, an inflammation characteristic of acute gout; or, it may happen that the shock of the injury, or the general disturbance of nutrition following, lets gout appear in some part even more apt for it than the part recently injured. In another, after similar injury, the trouble lingers with pain, and stiffness, and occasional swelling, and with constantly increasing distrust of surgery, till some one suspects a low degree of gout and, acting on the suspicion, cures the trouble. In another, the injured part remains weak and swollen with puffy integuments, often seeming to get well, and then, on any exertion, relapsing; never quite free from pain yet never very painful; but slowly becoming more swollen and more misshapen till it is evidently the seat of scrofulous disease. In another, after, it may be, a period of apparent recovery, a painless swelling appears, and increases, and at length is evidently cancerous.

Now, all these persons, before they were hurt, may have been reputed healthy; and it may be believed of some, of whom these histories have been told, that their constitutional tendency might never have appeared if it had not been discovered by the injury, impairing the nutrition of a part, so as to permit or make it apt for the localisation of a constitutional disease. The frequency of such cases suggests caution in all instances of injuries befalling

persons of known constitutional dispositions. And among those whose dispositions are not known certain suspicions are always wise; as that when, in a middle-aged or older man, an injured joint remains long stiff and painful, without marked heat or much swelling or fever, the delay in recovery is due to some measure of gout or chronic rheumatism requiring hot appliances and, not inaction but, friction and exercise and even violent movement. Or, similarly, in younger persons scrofula should be suspected: or in those of any age, when the part remains or becomes the seat of pain altogether beyond a fair proportion to any other of the consequences of the injury, some neurosis should be suspected, such as injury would bring-out from a nervous constitution.

The rule deducible from these and the like cases is very wide. The process of recovery from injury is, in healthy persons, as regular in time and method as the process of development or growth; when it is deviated from, it may be because of some local wrong in an otherwise healthy person, but more often it is because of some constitutional wrong.

The cases of constitutional disease discovered by fever might serve to illustrate a large part of the convalescence of fever, a subject of the highest interest and full of promise of utility to one who will carefully study it. The sequelæ of scarlet fever are commonly enumerated; those of typhoid fever, especially those seen in surgical practice, are scarcely less numerous but seem less known. I doubt whether the reason of the great variety of the sequelæ has in either case been sufficiently studied. It may be that some of the diversities are due to different trans-

formations of fever-poisons; and this may seem very probable if we compare the sequelæ of different fevers, for those of scarlet fever, for example, are different from those of typhoid. But the differences of the sequelæ of the same fever in different persons are more probably due to the constitutions, or, it may be, to some personal or local peculiarities, of the several patients. Certainly it must not be called accidental or unmeaning if, after typhoid fever (to name only such cases as I have seen), some patients have chronic suppuration of lymph-glands, and some have phlebitis, and some acute periostitis (some of these being symmetrical and ending with necrosis), and some have chronic suppurative periostitis of ribs, and some a terrible neuralgia, and some have wasting of muscles and some a local paralysis.

The common meaning of all these various events seems to be that, the nutrition of all parts being impaired by typhoid fever, there is opportunity for the manifestation of constitutional, or even of local, dispositions to disease. And this is confirmed by instances in which different members of a family suffer alike. In one instance related to me five members of a family have had more or less extensive paralysis of muscles after typhoid or typhus fever. And I know a man who had femoral phlebitis after typhoid, and many years later saphenous phlebitis connected, I believe, with gout, among whose relatives three cousins and a nephew have considerable varicose veins.

The influence of mental trouble in discovering constitutional disease is often very marked. Every one who has seen much of cancer must have noticed the large

number of women who tell of great grief or anxiety just before they found the disease. Fits of gout follow worry and overwork : and syphilis long hidden and forgotten will reappear after fever, or long distress, or ill-feeding, or after mental shock. I remember a hospital-patient in whom a well-marked syphilitic eruption appeared a day or two after fright at seeing a friend die suddenly ; yet no syphilitic symptoms had, for some years previously, been observed in him.

Illustrations such as these may suffice to show the general rule that injury, fever, mental distress, or whatever else may impair the nutrition of the whole or any part of the body, may discover even the lowest degree of constitutional disposition to disease ; and, for another rule, that there may be no better certificate of health than the having passed through a severe fever, or recovered from some severe injury, without the appearance of any constitutional disease.

TIME IN CONSTITUTIONAL DISEASES : CLIMAX, DECREASE,  
REVIVAL.

A constitution is a life-long thing : but, at least in its tendency to local manifestations, each constitutional disease has times of lesser and greater development or intensity. And generally we may say that for each there is a time of climax or chief intensity before which it is, and after which it may be, less intense. Thus, speaking generally, scrofula has its climax in early life, and gout in middle age, and cancer in advancing years. But the deviations from this rule are not rare. Cancer in some

of its intensest forms appears in early life ; scrofula and tuberculosis may appear first in old age ; gout may appear in the young (though not nearly so often as is supposed, for its name is often used to cover the hated name of scrofula).

This occasional untimeliness of climax in constitutional diseases should be well remembered for the sake of keeping safe from serious errors of diagnosis. The mistakings of cancer for scrofula in early life, and of scrofula for cancer in old age, appear about equally frequent : and both are more frequent than they should be.

In the cases of those constitutional diseases whose climax is most frequently attained in the earlier part of life, there may be so great a decrease of intensity after the climax is passed, that a patient may seem to have outlived his tendency to localised disease. An apparent outliving of a morbid constitution is of practical importance in such cases as those in which a scrofulous joint is amputated or excised. The probabilities of a favourable recovery depend mainly on the degree in which the scrofulous constitution may have declined from its highest degree before the operation is done. It is desirable that it should have declined not only so far that the local disease should be stationary, but so far that the scrofulous constitution may not be made more intense by the fever and other disturbances of health which may follow the operation.

In like manner, one form of the nervous, or neurotic, constitution, the hysteric (so called), may be in great measure outlived. As years advance the vivacity of the central nervous organs becomes less ; impressions are

less keenly perceived, less widely and less vividly reflected; the power of attention, even of self-attention, is diminished; and after fifty there are comparatively very few nervous imitations of organic diseases. There are enough to make one cautious in diagnosis; but the chief caution must be lest organic disease should be overlooked in what is thought to be hysterical.

But whether a constitution can be in any degree or measure outlived may depend, not only on its own nature, but on the time of life at which it attains its highest development. The scrofulous may thus appear to be outlived, for it usually tends to decrease before middle age: the rheumatic, or that form of it which is marked by acute rheumatism, may similarly be outlived. The gouty and rheumatic-gouty are not outlived. The cancerous constitution is not outlived even in appearance, unless in cases too rare to be reasoned-on; and this not only because of its usually mortal cachexia, but because in a constitution it most frequently attains its climax in advancing years, and therefore, in any single case, may be expected to become more intense as years advance.

We may connect with these facts some of the differences of the results of amputations. If a scrofulous limb is removed from a young person there is, often, no further serious local manifestation of scrofula; but of the cases in which I have seen scrofulous limbs removed at or near middle age, the majority soon showed scrofula in other parts or died tuberculous. When it was not very rare for limbs to be amputated for neuralgic joints the stump commonly remained neuralgic for many years, but at last

became quiet when the nervous constitution became less dominant. But of all the amputations of cancerous limbs that I have known, at whatever time of life, only one has been followed by freedom from cancer for more than five years.

But, in connection with this occasional outliving of a constitutional tendency to localised disease, it must be remembered that a constitution, which may have been unmarked or may have declined in one period of life, may at a later period, and in advanced age, gain prominence and manifest itself in severe local disease. Thus syphilis sometimes reappears after many years of apparent health; senile tubercular phthisis is well known; and in the paper on 'Senile Scrofula' I have shown that there is, probably, no scrofulous disease which may not be found, with all its usual characters, in even the oldest people, among whom some may have been evidently scrofulous in early life, and some may have shown no previous evidence of scrofula.

Let me add some recent cases of this fact. In a man of 82, I found abscesses in the scrotum and perineum with no appearance of urinary or other local cause, undermining and opening in many directions. I had long known him as one of the finest, sturdiest men of his age; active and a leader in business and society. I half apologised when, seeing no possible origin for his abscesses but senile scrofula, I asked him if he had ever been suspected of consumption or anything of the kind; but his answer made his case clear enough. He had a family-history of consumption, and himself had had

frequent attacks of hæmoptysis connected, as he had been told, with disease in the upper part of his right lung. His abscesses remained unhealed till he died at 84. He illustrated, what I think, is a general rule; that, the older the scrofulous patient, the less is his chance of complete recovery from any local manifestation of his disease; the less is the good influence of all the means that appear most useful in the young scrofulous. So, in a lady, past 80, who had well-marked scrofulous perioritis with suppuration on the upper part of her sternum. It went on long enough to have healed in a young person, and it showed no untoward changes, but simply it did not heal, and it seemed to hasten the infirmities of old age with which she died. And another, at 91, had scrofulous suppuration in her lower cervical glands, such as could not be distinguished from that which is oftener seen at 9 or 19; and this slowly healed; but it impaired the good health with which she had previously enjoyed an active life, and she died with her next attack of bronchitis.

#### SUCCESSIONS AND COMBINATIONS OF CONSTITUTIONS.

Thus far I have taken illustrations from cases in which the constitution manifests itself in tendencies to diseases of one type, various in degree but not modified in quality. But a man may combine in his own constitution, in any diversity of proportions, parts of the constitutions of many ancestors, and add to them some peculiarity of his own; for no inherited likeness is perfect. I cannot here trace out all the confusions



hence resulting, but I would recommend the study of it under such titles as the Successions, the Co-existences, and the Combinations of Constitutions.

#### SUCCESSION OF CONSTITUTIONAL DISEASES.

If I speak of one constitution being succeeded by another, this must mean only that at one time of life one constitution is more fully developed than another, and makes itself manifest by localised diseases while the other remains unobserved. It is not rare to find a patient with scars of scrofula endured in early life, and with nodular or otherwise altered joints that were the seats of gout in later years, and who now has cancer.

A gentleman 75 years old had had psoriasis for thirty years, and during twenty-five of these he had taken a grain of calomel (in five grains of Plummer's pill) every night, enjoying all the time excellent general health. At 75 epithelial cancer appeared and quickly increased on one of his little fingers. I amputated the finger, and during his recovery from the operation he had his first attack of acute gout, a family disease, with which his brother, 80 years old, was at the same time suffering. He died within a year with cancer in his axillary glands.

Many curiosities of succession of this kind might be traced in the lives of old invalids, and many vain attempts might be made to describe the processes which must in the same person be simultaneous; the gradual development of one 'method of life,' the completion and outbreak of another, the decline of another. But the subject is one of more than curiosity; it has a practical bearing,

especially in diagnosis. The local evidences of a constitutional disease passed-through should not give us an overweight of prejudice in favour of suspecting the same disease in all that comes after. It may be present, indeed, in some lower measure, and, as syphilis and gout commonly do, may give a tone to any other localised constitutional disease ; but the local evidence of one constitution succeeding another may be clear enough and must always be watched-for.

I have been impressed with the need of this watching for a succession of different constitutional diseases by cases in which gout has been succeeded by scrofula. For instance, a patient at middle age had inflammation of the tarsal part of the foot, with excessive heat and redness and other signs from which no one hesitated in concluding that he had the gout, which he was known to have inherited. But there was no timely subsiding of inflammation, or mere remnant of pain and stiffness and some swelling, such as should have happened with gout ; but after several months a still abiding soft and pulpy swelling about the tarsus, with dull aching, and with inutility, wasting of the leg, and other features quite characteristic of scrofula. The case required for its recovery many months of treatment with splints and care of the general health, and means that would have been very inappropriate for gout ; and during the recovery the patient's daughter had scrofulous disease of the hip-joint.

Such successions of constitutions may be noted in many other cases. Patients will tell that they were very weak in childhood but grew-up strong ; others, that they were

hysterical or in some way always nervously disordered till they were at middle age, and became in some other way disordered. Not rarely one who was tuberculous in early life becomes at some later time cancerous. In all alike we may say that one constitution has been succeeded or become dominated by another.

#### CO-EXISTENCE OF CONSTITUTIONAL DISEASES.

Between the Co-existences and the Combinations of constitutions a fair distinction may be made. Two or more may *co-exist* in the same person, and may appear at the same time, in localised diseases, without mutual influence, unless in things not essential to either; or, two or more may *combine* with such mutual influence that the result may be called an intermediate, hybrid, or compound disease. Thus gout and tuberculosis may co-exist, and neither of them may modify the characters of the other; so may gout and cancer, and so may any form of nervous constitution co-exist with gout, or scrofula, or, I suppose, any other constitution, without modifying any of its characters except those which are due to nerve-phenomena.

But, although two diseases may thus co-exist without close combination, yet their mutual influence always needs consideration in practice. Cancer and gout are often found together, and each may pursue its separate course, the cancer in one part the gout in another. In the case already related of the patient who had cancer, gout, psoriasis, and habitual calomel, I could not see that one of these had any influence on another. Yet there are

cases in which the co-existence of cancer and gout needs care in treatment; for in patients who have both, the cancer (as I have observed especially in those in the breast) is very liable to inflammation and consequent severe pain. I cannot be sure whether this is due to the gouty constitution or to the plethora with which it is often associated; but I think I can be sure of the fact, and that it is one of the grounds, perhaps the only one, for the reputation of liquor potassæ in the treatment of cancer. Sir Benjamin Brodie used to give this medicine in a large number of cases of cancer and of doubtful tumours. I do not doubt that it was often useless; but he was too wise a man to give anything often which never did good. I have given the liquor potassæ, in the usual doses of a drachm three times a day, largely diluted, and have often seen no effect produced. In one case, indeed, in combination with small doses of iodide of potassium, it seemed to cause the absorption of a great mass of medullary cancer of an undescended testicle; and this not only once, but, after recurrences, thrice. But, frequently, I cannot doubt that it has given relief from the burning, aching, and bursting pains which have been connected, I think, with inflammations of the cancer—such inflammations as I have thought most frequent in gouty and phlethoric patients. To the same or some similar combination of other maladies with cancer may be ascribed, I think, some little good that Missisquoi-water sometimes does. Its influence on cancer itself is, I believe, absolutely nothing; but it sometimes gives comfort ‘by the way.’

The co-existence of cancer and general neurosis must

be studied. Few diseases are more various in painfulness than cancer. It is not very rare to find patients who pass through the whole course of cancer to their death without great suffering. I remember one who begged that her breast, with a great mass of ulcerated cancer in it, might be removed, only because she could not endure the sight and smell of it: of pain she said nothing and felt very little. Others endure agonies; and we may be unable to detect anything in the local conditions of the different cases to explain this great difference in their degrees of pain. The difference must depend, I think, on the different characters of their several nervous systems, and in those who suffer most we may generally believe, for we often see, that a morbidly neurotic constitution co-exists with the cancerous. Wherever this occurs, the two constitutions should for treatment be considered separately; and the neurosis should be dealt with as if it were the patient's only trouble.

It would be difficult to overstate the utility of studying the co-existences of different constitutional diseases in the same person: in each case each of the diseases may need to be separately treated. The study may go with that of the so-called antagonism of diseases. Some appear very rarely to make progress at the same time. Cancer and syphilis, I think, very rarely do so, even when, as commonly happens, cancer has its first seat on a tongue or lip that bears marks of syphilis. And cancer and tuberculosis, though their effects are often found in the same body, do not, I believe, make progress together; when one is active, the other is slow or stays; and sometimes

they appear in nearly alternate progress, as if in a strife for which shall kill.

#### COMBINATION OF CONSTITUTIONAL DISEASES.

In the combinations of constitutional diseases the characters of two or more may be so mingled that a localised disease may combine the distinctive features of both or all. Thus gout and scrofula may be combined. I think it was such a combination that I saw not long since in a patient, 63 years old, who had well-marked scrofulous disease in the metatarso-phalangeal joint of a great toe. Her father, four brothers, and three sisters died young with consumption ; and her one living brother was gouty. It seemed as if inherited scrofula had determined the general character of her disease, and inherited gout its locality.

Very important are the combinations of syphilis. Among all constitutional diseases, whether it be inherited or acquired, syphilis appears to be the most miscible (if this expression may be allowed), and the methods and degrees in which it is modified by the several constitutions of those into whom it is introduced deserve much more study than, so far as I know, they have yet received.

A general survey of a large number of cases of syphilis justifies a general description of the disease which may be generally true. But in this large number of cases some would be found not conformed to the general description. It would be difficult to find two persons who, being inoculated with the same syphilitic poison, would display

exactly the same consequences from beginning to end. Why would they not? We must not talk of chance or accident; and differences of circumstances would seldom suffice to explain such differences of result. These differences seem due sometimes to previous diseases, sometimes to inherited local liability, but more often than to all other things together to the differences of the constitutions of those into whom syphilis is introduced. This is, I think, most plainly seen in tertiary syphilis; though, indeed, it is seldom difficult to discern it in the course of even primary syphilis. In tertiary syphilis I cannot doubt that, in the great majority of the cases in which the ulcerative processes predominate, the acquired syphilitic constitution is combined with a scrofulous or tuberculous one, while in the majority of those in which diseases of joints or bones without ulceration prevail, the syphilis is combined with an inheritance of rheumatism or gout.

In any given case it may be very hard or impossible to analyse the complex constitutional state which results from inheritance, from syphilis, from treatment, from variety of circumstances; but one broad rule of practice may be safely laid down—that in every case of syphilis it is essential to discover, if possible, the inherited constitution of the patient and, in any necessary degree, to treat that constitution at the same time as the syphilis is treated. Thus to any one who has marked scrofula, or tuberculosis, or a tendency to it, mercury is to be given only with extreme caution. In such patients it may often be better to leave even primary syphilis to its own course than to give mercury; and when it is given it should be in conjunction with cod-liver-oil or iron and good food;

and whatever other means may be necessary to avert the risk of hastening the course of the scrofula or tuberculosis. The same rules must be held in the later stages of syphilis. The tuberculosis or the scrofula, or whatever else, must be treated at the same time as the syphilis, not only for their own sake but because they hinder the right action of the remedies specific for syphilis.

This seems to me very marked in many cases of the combination of gout and tertiary syphilis. The diseases of joints, the muscular and neuralgic pains, which are most commonly the results of the combination, are sometimes tractable with iodide of potassium given in any ordinary way ; but often they require, or at least are much more quickly cured by, the combination of remedies for gout and syphilis. In many such cases iodide of potassium, given in even large doses in the ordinary manner of a draught, has appeared nearly impotent ; and then, with no other change of conditions, has been effective when even small doses were given largely diluted with some alkaline water, and with regimen appropriate to the lesser forms of gout. It is on this principle I think that we may explain a great part, if not the whole, of the success of treating syphilis at some of the health-resorts of the Continent. The syphilitic and the rheumatic, or gouty, or other constitution are treated at the same time : and mercury or iodide of potassium is given while the patient submits to the 'waters' and the prudent regimen.

I might multiply such suggestions for practice, but they would all come within the same rule of the necessity of discerning the two or more constitutions which may not merely co-exist but be combined in the same



person, and of regarding both or all in the treatment of every localised disease, even though the characters of this disease may suggest that it is an expression of only one of the combined constitutions.

This must be a rule of practice, even though the analysis of constitutions which it demands may be sometimes impossible: impossible, because constitutions may be combined in the most various numbers and proportions, and sometimes with such closeness that one cannot assign to each its part in the whole result. There may be complete hybridity, in which one can only say that each part of the result is a little more or a little less like one or the other of the original constitutions. Such hybrid diseases seem to be those of the confused group of what are called rheumatic gout. In the combinations of gout and rheumatism there appears an intricacy past clearing; and unhappily the difficulty extends beyond diagnosis into treatment. Whatever forms we may try to define with such names as rheumatic gout, chronic rheumatic arthritis, rheumatismus deformans, and the like, cases are easily found completely filling the intervals between the groups: and as to treatment it seems only too true that in the same degrees as the cases deviate from the typical characters of gout and rheumatism so do they become less amenable to the treatment useful for either when apart. Curiously, too, the hybrid disease is comparatively insusceptible of the ill consequences of the errors of diet which aggravate gout and, in a less degree, rheumatism. Many of those who have the most marked chronic rheumatic arthritis, which seems to be a form of combined

gout and rheumatism, can eat and drink what they please, with at least as much impunity as most healthy people can.

#### LESSER CONSTITUTIONAL CONDITIONS.

What I have said may suggest the need of a much more constant habit of analysing constitutions than most of us are in practice accustomed to. We are commonly content to speak and think of one man as gouty, of another as scrofulous, another as nervous, and so on ; just as we are apt to say that one man is good, another bad ; or that one is cunning, another silly, and so one. But in neither moral character nor health-character is it common to find singleness or simplicity. In all characters are many constituent elements ; one may be very dominant, but the rest are not often so trivial that they may be safely neglected. Certainly it is necessary to good practice in either surgery or medicine that no element of a patient's constitution should be quite overlooked. Many of those which we commonly speak of as if they were single and self-complete constitutions may be mingled in the same person, and yet more varieties may be derived from the combinations with them of some lesser constitutional conditions.

Among these is that condition of which I have often spoken as 'cold-blooded.' There is no condition which may not be modified by it, and the peculiarities suggesting the name should always be observed : the habitual coldness of the feet, the coarse dusky-pink papillary condition of the skin of the legs and the back of the arms, the too venous appearance of parts that should be ruddy, the

general inactivity and torpor of all the functions, the frequently scanty painful menstruation. For with these things there commonly coincide a low power of resisting the ordinary causes of disease, and a slowness of recovery from disease and injury; and, with whatever other constitutional defect or disease the coldness may be combined, its need of good food and warmth, of long sleep and, generally, of tonics must be borne in mind.

And there are constitutions even less defined and less signalised than these which yet should be observed. Thus we speak of the weak and the strong in constitution, and the terms are not unmeaning. Generally, men are called strong or weak according to their capacities for work or pleasure, for mental or muscular efforts; but these capacities have no constant or necessary relation to strength or weakness of health, though they are often found together. The highest strength of constitutional health is shown in that very rare state in which a man passes through a long life without disease, and dies of old age, all his functions becoming gradually less active and all at the same time ceasing. This state may be where there are few, if any, of the popular evidences of health. A man of 96 told me that he had never deemed himself a healthy man: and another nearly as old, who had never suffered anything worse than slight indigestion, said that he had never enjoyed health. Neither of these had been vigorous in mind or body, but in both there had been the main characteristics of 'strong' health, namely, such tenacity of composition in every part, and such balance of them all, as cannot be disturbed by the ordinary forces

of disease, or being disturbed can be quickly and perfectly recovered.

The opposite of this is in the 'weak' constitution; the condition very easily moved to disease, very slowly and imperfectly recovering, yet in disease showing no specific character, no constant or well-defined morbid method of nutrition or excretion. They who are thus weak cannot bear with impunity any of the ordinary causes of disease, as fatigue or great heat or cold: 'every little thing makes them ill;' their illnesses 'come of themselves;' from exciting causes too slight to be observed.

But a simply weak constitution is as rare as a simply or completely strong one. The instability which is weakness is generally associated with some definite character of disease; with the scrofulous or gouty or some other morbid constitution. Still, mere weakness must be reckoned among the important elements of personal character in respect of health and disease, as surely as it is among those of mental character, or muscular power. And, I repeat, muscular or mental power is not to be taken as a measure of health: in the view of pathology a gouty person is weak in the same sense as a scrofulous or a syphilitic one.

There are notable differences of constitutions in respect of the times in which the course of life, from birth to death in senile degeneration, is run. Living to old age 'goes in families,' and so does dying before old age. The time in which the changes ending in the senile degenerations are achieved is in the one group of persons much longer than in the other. Often, indeed, the earlier or later dying is because of inherited diseases, of

which some are earlier some later developed. But sometimes it is plainly because the degeneracies of old age are quickly reached; not only, it may be, in the hair or teeth, but in much more important structures or in all parts. It is, probably, due to this that in some families many members die at or near the same age, soon after middle life; and these do not all die of the same disease, but it may be of various casual diseases or injuries, as if they had all lost before the usual time the powers of repair.

Another unpunctuality of life is observable in the cases of delayed puberty, and of delayed maturity of manhood or of womanhood. This may be seen in some who, in early life, have had some severe illness which seems to have delayed their development; but in others, and not rarely in several members of the same family, the delay seems to be only because the same changes are more slowly wrought in these than in the average of the same race or class of persons. The speed of life is not the same in all.



## N O T E S.

---

### *Note I., page 5.*

IN the following note I have endeavoured, by using experience gained at the Children's Hospital, to discuss the various risks of operations in childhood more at length than the space that could be allotted to the subject in the text would permit.

A few hours of acute pain will suffice in young children to induce a dangerous degree of collapse. This was shown in a case of strangulated hernia of only about sixteen hours' duration, in a boy four months old. Strangulation set-in at about five in the afternoon, and the child was in great pain, and screaming almost incessantly through the night. In the morning he was very pale, with his features pinched, his eyes dull and sunken, pulse small, rapid, and hardly to be felt at the wrist, respiration hurried and shallow, skin cold and clammy, and there had been several slight convulsions. After his hernia had been reduced by operation he rallied at once, and all symptoms of collapse soon disappeared. Another child, two years old, the particulars of whose case were sent from the country, died apparently of the pain and terror caused by the repeated dressings of a burn on the trunk and lower limbs. During the intervals between the dressings he appeared to be doing well, and his wound, at the end of a fortnight, was covered with healthy granulations: but each of the dressings left him in a prostrate condition, and after one of them he died. On two or three occasions young children who had been sent to their homes

after operations for hare-lip, or the ligature of large nævi, and who have suffered severe pain for some hours subsequently, have been found next morning in considerable peril from shock. Happily the means in use for preventing or relieving pain in adults may, with proper caution, be safely employed for children. All know how well even weakly and puny infants a few days old take chloroform. It should be given not only for painful operations, but also for painful dressings. From what was reported at the time it seemed probable that the burn-case just referred to would have ended in recovery if chloroform had been used when the wound was dressed. Opium must always be given with great care as to its quantity, and, as Dr. West<sup>1</sup> points out, in preparations of uniform potency; but thus employed, it is perhaps the most valuable medicine that children ever take. At the Hospital for Sick Children opium, chiefly in the form of the tincture, is constantly prescribed after operations and otherwise, just as it might be for adults.<sup>1</sup>

It is often said that children bear the loss of blood badly. It would lead only to evil if doubt were thrown on this belief in a form that could, by any possibility, produce a disregard of hæmorrhage in operations on children: yet it may be questioned whether the opinion is well founded. I have on two occasions known children make a good recovery from operations which left them blanched and nearly pulseless. One of these patients was an infant eleven days old from whose parotid and pterygo-maxillary regions a large congenital cystic tumour was removed, through an incision reaching from the corner of the mouth to the zygoma. In the other, a boy aged three, a cyst in the neck had been punctured, and was soon afterwards found so distended with blood that it was necessary to lay it freely open. When this was done by Mr. Thomas Smith such profuse hæmorrhage followed that in two or three minutes the child was completely blanched, and very nearly pulseless. In some cases of hæmophilia children who have bled very largely rally with surprising rapidity as soon as their bleeding can be stopped. In a case of repeated secondary hæmorrhage after lithotomy a boy aged

<sup>1</sup> 'Diseases of Infancy and Childhood,' 4th ed. p. 20.



three, lay for a fortnight blanched to an extreme degree, yet he quickly recovered when his bleeding ceased. In a boy, aged six, in whom an abscess connected with hip-disease was opened, bleeding from the wound was overlooked till he became pale and faint, but in a few days all traces of the occurrence had disappeared. I am not aware of any case of death from hæmorrhage after an operation at the Children's Hospital.

Convulsions might be supposed to follow large hæmorrhages in children, but later experience confirms the observation of Sir William Fergusson, that they are extremely rare from this cause.

Convulsions having been referred to, this may be the place in which to mention a danger attending operations on children, though I have known it realised in only two instances. A child about three months old, who was operated on for hare-lip, after passing eighteen hours without any symptom of danger, became suddenly convulsed, and died in a few seconds. I afterwards learnt that he had previously been subject to convulsions. I have heard of another almost precisely similar accident. There was doubtless a special element of danger in these cases, for the breathing space to which the children were accustomed had been suddenly very much curtailed by the operation, so that asphyxia was readily induced; yet the result suggests that in all cases of operations on children it is prudent to ascertain whether there is a history of previous convulsions.

The various exanthemata should not be lost sight of in their relations to the surgery of childhood. Allusion has been already made (p. 349) to the effect which operations frequently have in determining the appearance of scarlet fever. No similar relation has been observed between operations and measles, or indeed any other zymotic disease besides scarlet fever. But care must be taken that operations are not performed upon children during the incubation-period of these disorders, or during even slight feverish attacks; and it is wise, if there be any doubt as to the patient's state, especially if his temperature be higher than normal, to wait for the certainty

which a few days' delay will bring. Bronchitis, cough, and even a severe catarrh, have all led to the failure of plastic operations in children. And there is need for equal care that operations are not undertaken in those who have recently passed through any exanthem, or other serious illness. A dermoid cyst was removed from the brow of a girl, five years old, who appeared in good general health. Such extensive sloughing followed, that when the wound had scarred the eyelid could not be closed. It was then mentioned that the child had recovered from a severe attack of measles less than a month before.

At p. 5 Sir James Paget has pointed out that children are singularly little liable to pyæmia after wounds; a strange contrast, he adds, to their liability to it in connection with acute necrosis. In the few instances which are exceptions to this rule the affection usually proves to be of a milder and less fatal type than that which prevails among adults. Children not seldom recover from an attack of pyæmia which is very acute at its commencement, and which would generally be quickly fatal in older people. This comparatively favourable issue is due no doubt to the perfection with which the unimpaired organs of children perform all the processes of elimination and excretion. In children, too, medicines, especially the hypsulphites, and the various preparations of cinchona, have appeared more efficacious than they are in adults.

Rigors are rarely seen in children, in whom their place is taken by convulsions. Dr. West,<sup>1</sup> referring to this subject, remarks 'The disturbance of the spinal system which ushers in fevers in the adult shows itself by shivering, while in the child the same disturbance often manifests itself by convulsions.' This observation should be borne in mind, especially in cases in which pyæmia is likely to be developed. The occurrence of a convulsion under such circumstances may afford valuable evidence for diagnosis, just as shivering may in the adult; but unless care be taken this symptom may easily lead to error.

Diseases of the liver and kidneys must be looked for, and

<sup>1</sup> 'Diseases of Childhood,' 4th ed., p. 34.

if detected be carefully considered as to their bearings on operations in children; but the rules used for adults may be somewhat modified for children. The affection of these organs is generally either fatty or amyloid degeneration, depending on prolonged suppuration (p. 29). In the advanced stage of either form operations are highly dangerous. But, on the other hand, these conditions are not incurable, and instances might be given in which enlargement of the liver and albuminuria have completely, though very slowly, disappeared when suppuration ceased, and operations performed while these affections were in their early stage have not been adversely influenced by them. I believe an operation is not improper, but under favourable local conditions rather called-for while these diseases are incipient, for if it can limit the amount of suppuration it may be the means of arresting their further advance.

At p. 35 attention is drawn to the possibility that during the feverish condition which may follow an operation, latent tuberculous disease may become fatally active; and an instance is given of a man in whom acute meningitis set in while he was feverish after the opening of a large axillary abscess. This is a source of danger that must not be forgotten in children, in whom tuberculous diseases are comparatively common. Some years ago Mr. Thomas Smith excised the hip-joint of a boy about six years old. Next morning the patient became comatose and convulsed, and within a week he died. At the post-mortem examination several large masses of yellow tubercle were found in the substance of the brain, and the cerebral meninges were in a condition of recent inflammation. In another case a girl was admitted with hip-disease, and was soon afterwards placed under chloroform while her limb was brought into good position. She recovered naturally from the chloroform, but next day became drowsy, and soon showed conclusive signs of tubercular meningitis, of which she died within a fortnight. Her history was not clear, but there had been headache and fever before her admission. It may be, therefore, that meningitis had already commenced. Still, even so, the case may be useful as showing

how much care is necessary to avoid the appearance of sometimes doing mischief.

The period of the first dentition is unfavourable for operations, and should if possible be avoided. Children are not only irritable and fretful during this process, but are also often disturbed both in their sleep and their digestion; and are not rarely attacked with exhausting diarrhœa or with convulsions. The dyscrasia of syphilis unfits infants for plastic operations.

Children are sometimes found to be suffering from serious constitutional disturbance and exhaustion consequent on severe local disease, such for instance as stone in the bladder and the question arises whether they should be operated-on at once, or should first be prepared for operation by rest, good food sedatives, and other appropriate means. Two or three years ago a boy with stone, admitted under the care of Mr. Willett into St. Bartholomew's Hospital, was already so much reduced by prolonged suffering that it seemed doubtful whether lithotomy might not fatally tax his remaining strength. Mr. Willett, however, with the concurrence of all his colleagues who saw the case in consultation, determined to operate immediately. The boy rallied at once, and made an uninterrupted recovery. In another case lithotomy was performed on a boy aged two, who was reduced to an almost dying state by pain and frequent diarrhœa. He also recovered without drawback, and his diarrhœa ceased a few hours after the stone was removed. These cases fairly represent general experience on this point, by indicating that immediate interference is usually safer than delay.

*Note II., page 15.*

Mr. Savory, in his lectures on the examination of patients before operating on them ('Brit. Med. Jour.' 1873, vol. i., pp. 55, 107), has some important remarks on the preparation of patients for operations, and he refers especially to such as are intemperate. In these, if an operation is unavoidable, he considers it very important, when circumstances permit, to postpone its performance for a time, in order, by regulating the habits and

diet of the patient, and promoting the elimination of refuse material from the system, to bring about a more promising state of health, and he insists on the considerable improvement which may be secured, in some cases, by even a few days' delay. He discusses the propriety of suddenly altering long-continued habits of intemperance in the immediate prospect of an operation, and concludes, that although this course may sometimes involve large risks, these are certainly less than those that beset a patient in whom all preparation has been omitted.

*Note III., page 17.*

Many surgeons who have practised in India confirm this statement without a moment's hesitation. And yet a somewhat different impression is derived both from the reports and statistical tables that have been published of the results obtained in various native hospitals and dispensaries of India, and from the opinions of Dr. Fayrer and, as regards other coloured races, of Professor Peaslee, of New York; and both these are names of high authority on the subject.

Dr. Fayrer has given the following statistics. ('Indian Annals of Medical Science,' vol. x., 1865-66). Of 32 amputations performed at the Medical College Hospital in Calcutta, namely, 1 at the hip, 3 through the thigh, 10 through the leg, 4 (by Syme's operation) at the ankle, 5 at the shoulder, 5 through the arm, and 4 through the forearm, 18 were fatal. In 9 death resulted from pyæmia following osteo-myelitis; in 3 from pyæmia not connected with bone disease; and in 6 from tetanus gangrene or exhaustion. In a total of 115 amputations performed in the latter half of 1863 in 180 hospitals and dispensaries in the Bengal Presidency, 26, or 1 in 4·4, were fatal. In 68 cases of lithotomy in the same Presidency 8 were fatal, or 1 in 8·5; and in the North-West Provinces and the Punjab, in 555 cases 57, or 1 in 9·7, were fatal. A native surgeon, Babo Ram Narain, has, Dr. Fayrer states, performed lithotomy more than 200 times in the stations of Cawnpore and

Budaôn, with the loss of only 7 cases; but this success appears to be altogether exceptional.

In strangulated hernia the intestine, if not released, speedily becomes gangrenous; and even after early operations gangrene frequently ensues in the portion of intestine that has been injured. Although in the country districts it is often seen that severe wounds involving the large joints or the viscera are repaired, yet these patients are found to evince a low standard of vitality, and in many instances are attacked with pyæmia or gangrenous inflammations. Dr. Fayrer believes the natives of India recover, under favourable hygienic conditions, perhaps as well as Europeans; but he thinks this is all that can be said of them.

Dr. Garden (*loc. cit.*, vol. xii.) finds that of 824 cases of lithotomy performed in the course of eighteen years in a dispensary at Saharunpore, 108, or 1 in 7·63, were fatal. 'A very high mortality if the native of India possesses, as he appears to, a peculiar facility of recovering from operations and incised wounds generally.' The death rate after lithotomy in England, according to Mr. Poland, in Holmes's '*Syst. of Surg.*' (vol. iv.), is 1 in 7. I am indebted to Professor Peaslee for a communication in which he says, 'Blacks have, according to my own observation, far less tolerance of severe surgical operations than whites.' It may be interesting to add from Miss Young's life of Bishop Paterson, that tetanus is very common after wounds in the natives of the Polynesian Islands. Several natives were struck with arrows in the expedition that cost Paterson his life, and almost all died in a few days of tetanus. And the same complication, I am told, very commonly follows even trivial wounds in the natives of the district occupied by the Zambesi mission on the East Coast of Africa.

*Note IV., page 26.*

Children so rarely suffer with strangulated hernia that it is difficult to speak positively upon any point respecting the affection in them. But present experience seems to show that

they form an exception to this rule; for in a considerable number of the cases that are recorded the bowels have acted—in not a few copiously—without ill effect, from three to six or eight hours after the operation, and have subsequently remained regular. (Article by Editor ‘St. Bartholomew’s Hospital Reports,’ vol. x., p. 210, *et seq.*)

*Note V., page 45.*

Many of the insane are persons who not only enjoy sound bodily health, but also lead very regular lives, secure in the restraint under which they are placed from intemperance and other faults in diet, and from overwork, exposure, and various influences that make other patients unfit for surgical operations or the repair of injuries. And many of them derive further advantage from their indifference to their condition, and freedom from all anxiety as to the result of their illnesses. This power of tolerating injury was well shown by the case of a patient who attempted suicide at Bethlem Hospital, in Sir William Lawrence’s time, by thrusting his head into the fire, and keeping it there till he had so injured his skull cap that the whole vault was afterwards separated by necrosis. Yet he suffered very little in his general health, and lived fourteen years subsequently. The skull, with the portion that was exfoliated, is in the museum of St. Bartholomew’s Hospital (Ser. I., 100). Mr. Ferguson, of Cheltenham, has lately published an instance in which he amputated the leg of a man who had placed himself, in an attack of acute mania, before a train on the line. This patient was very violent for many days after the operation, and frequently pulled off his dressings and bruised his stump, yet he made a good and tolerably rapid recovery, and left the hospital in about two months.

Mr. Curling records several examples of self-mutilation, in all of which the wounds healed favourably; and he remarks that these cases ‘generally do well, and the state of mind under which the injury is inflicted does not seem to operate prejudicially to the patient’s recovery.’—‘Dis. of Testis,’ 3rd ed., p. 84.

The case, however, is different in some instances of melancholia associated with a general break-down of health from prolonged mental trouble or overwork, coupled with habits of intemperance. Thus in attempted suicide, wounds of the throat remain for long periods pale glassy œdematous and without progress in healing, while the patients continue quiet and sullen, and gradually fail in general health. Not rarely they die of exhaustion with their wounds still unclosed.

*Note VI., page 84.*

Demarquay relates two cases in which this accident happened, and mentions a third ('Bulletin Gen. de Thérapeutique,' 1861, p. 21, *et seq.*). In one, a muscular and vigorous man, aged 35, in a struggle with his horse came to the ground with all his weight thrown upon one foot. He was unable to walk, and felt severe pain at the lower part of the leg and in the foot. No fracture or bone-dislocation could be detected, but there was considerable ecchymosis in the course of the peronei; and on the outer surface of the malleolus a tense cord could be felt rolling under the finger; and this was easily returned, when the foot was extended, into the normal position of the peroneal tendons. A long compress and a bandage sufficed to keep the tendons in place, and in three weeks the patient could walk on the limb.

In the second case a young woman jumped out of a window, and immediately afterwards was unable to walk, and complained of severe pain in the foot. There was considerable ecchymosis in the lower third of the leg, extending from the posterior aspect of the fibula forwards to the dorsum of the foot, and in the space between the fibula and tendo Achillis. The peroneal tendons lay in their natural position, but it was evident they were not contained in their sheath; and Demarquay believed they had been displaced in the fall, but had afterwards slipped back again into place. Mr. Curling ('Brit. Med. Jour.,' Jan. 2, 1869) has recorded a well marked case of displacement of the peroneus longus. The 'Bulletin de l'Acad. de Médecine,' Jan. 6,



1874, contains a very interesting paper communicated by M. Broca for M. Charles Martins, in which the latter describes a dislocation of the tendon of the tibialis posticus forward on the internal surface of the malleolus, which occurred in his own person. He received this injury by being thrown violently down during the landing of a balloon in which he had made a voyage. The tendon was easily replaced, but he could walk only with much pain and difficulty, and ecchymosis, extending as high as the knee, and considerable swelling, followed. He recovered with rest and the careful use of compresses, &c., in three months. M. Martins has given his paper additional value by making in it a collection of all the examples he could find of displacement of muscles. His list includes, besides the tibialis posticus, the long tendon of the biceps brachialis, the triceps brachialis, rectus femoris, sartorius, plantaris, and the peronei.

*Note VII., page 86.*

In this specimen, as in that of Mr. Soden's, for the two are singularly alike, the long tendon of the biceps has slipped from its groove about half an inch inwards, and is there confined by a strong band of fibrous tissue, which passes over it and straps it down. Mr. Soden's specimen is in the museum of King's College Hospital (No. 1341).

*Note VIII., page 86.*

The following is a condensed report of a case given by Hamilton. ('Fract. and Dislocation,' 3rd ed., Philadelphia, 1866, p. 581.) Mrs. B., aged 56, was thrown from a carriage, and dislocated her right shoulder. The dislocation was soon 'reduced,' but the joint remained painful, tender, and disabled and the patient could raise the arm only a very short distance from the side. Passive movements, however, were painless and free in all directions. Seven years afterwards the joint still remained partially crippled, and on examination at this time, the head of the humerus was found resting upon the out-

side of the coracoid process, and the shoulder was unnaturally prominent in front, and flattened behind. A few months later, in a sudden and thoughtless effort to raise the arm above the head, the muscles unexpectedly obeyed the will, and from that time the patient had perfect use of the limb, although the deformity still remained. She believed she heard a snap when the arm went up, but it was followed by no pain, soreness, or swelling. Hamilton thinks there can be no doubt that the deformity and disability here described were due, in great measure, to a displacement of the long tendon of the biceps.

*Note IX., page 86.*

Mr. Hey, in his original paper on ‘Internal Derangement of the Knee-joint,’ says, ‘The leg is readily bent or extended by the hands of the surgeon, and without pain to the patient; at most, the uneasiness caused by this flexion and extension is trifling. But the patient himself cannot freely bend, nor perfectly extend the limb in walking; he is compelled to walk with an invariable and small degree of flexion. Though the patient is obliged to keep the leg thus stiff in walking, yet in sitting down the affected joint will move like the other.’ —(‘Practical Observations in Surgery,’ 1810.)

*Note X., page 87.*

This cast, No. 29 in the series of models and casts of diseased and injured structures, is thus described in the museum catalogue, vol. ii., p. 278, No. 29. ‘Cast of a knee in which it was presumed that the internal semilunar cartilage had been displaced by external violence. Over the situation of the cartilage there was a deep crescentic depression of the integuments (this is well shown in the cast). The patient was knocked down, and fell with his left leg bent under him, and from that instant was unable to bear on the limb. In examining the limb while the knee was bent to its utmost, a sudden crack was heard, the depression of the integuments on the inner side of the knee disappeared, and the mobility of the joint was restored.’

*Note XI., page 117.*

Mr. Hutchinson ('Lond. Hosp. Rep.,' vol. ii., p. 109) expresses his belief that peritonitis very rarely occurs before the operation has been performed, unless it is provoked by perforation and faecal extravasation. What are taken to be the signs of peritonitis—sickness, constipation, an anxious expression, a somewhat dry tongue—are really due only to intestinal obstruction; while attentive examination will show that, although there is a painful sense of dragging if pressure is made near the neck of the sac, there is none of that general intolerance of pressure which marks a case of peritonitis. He points out that when, as it occasionally happens, patients die of strangulated hernia without operation, not the slightest sign of peritonitis is found after death; and he cites an instance, fatal on the tenth day, from unrelieved strangulation, in which this was the case. In his article on Intussusception ('Med. Chir. Trans.,' vol. lxvii.) his language is even more positive:—'In intussusception, as in strangulated hernia, and other forms of intestinal obstruction, it may, I think, be taken as an established fact, that unless actual perforation has occurred, there will be no peritonitis.' In explanation of the every-day observation that peritonitis is found in cases of death ensuing very speedily after operations for hernia, he remarks 'that it is almost impossible to exaggerate our conception of the wildfire rapidity with which inflammation of a serous membrane may commence, and may extend when once an adequate cause has been supplied.' The chief causes of peritonitis after operations for hernia he thinks are the return of intestine in a state of advanced inflammation, with flakes of lymph adhering to it, and with spots on its surface which are approaching gangrene; and secondly, the injury inflicted by fingers, directors, &c., introduced into the sac. In all this Mr. Hutchinson finds an obvious occasion to insist on the necessity for early interference in cases of strangulation; on the caution required in determining whether a piece of inflamed intestine should be returned or left in the sac, and

on the gentleness and care which must be observed in everything connected with the operation.

*Note XII., page 124.*

Since the lectures on Hernia were given, Dr. Dieulafoy has published his '*Traité de l'Aspiration des Liquides Morbides*,' which contains a chapter of great surgical interest and importance on the employment of aspiration in the reduction of strangulated hernia. The operation consists of puncturing the hernia at one or more points with a fine tubular needle connected with an air-exhauster, and removing any gas or fluid that may be present either in the sac or in the cavity of the intestine. Dr. Dieulafoy refers to numerous cases in which aspiration has been thus used either by himself or by other well-known continental surgeons. In some of these strangulation had lasted as long as four or five days, and the taxis had failed to accomplish reduction; yet after aspiration the hernia was easily returned. Against these successes he has to record some few instances in which aspiration failed to procure reduction, but none in which any mischief resulted. And he concludes that '*la ponction aspiratrice d'une anse intestinale herniée, pratiquée au moyen de l'aiguille n° 1, ou n° 2, est d'une complète innocuité.*' The cases most appropriate for aspiration are those in which the hernia is formed of intestine without omentum, strangulation is recent, and there are no adhesions. But he thinks it should be tried in all cases of strangulation, with the single exception of those in which there is reason to fear the intestine is already gangrenous or ulcerated. And he would use it before resorting to the taxis. Several surgeons in England have practised this method, and have obtained many satisfactory results. But the anticipations of Dr. Dieulafoy have not been fully realised. Aspiration has failed in a considerable number of cases, and it is assuredly not so free from danger as Dr. Dieulafoy believed when his lecture was published.

There are many conditions which render it impossible or

not right to return a hernia without opening its sac, and in which aspiration would prove useless or mischievous. At present the method must be held to be on its trial. It will undoubtedly prove valuable when strangulation is recent, and reduction is prevented by a collection of gas or fluid either in the sac or the canal of the intestine; but it must be used with great care, and only after a very close consideration of all the features of the case.

*Note XIII., page 127.*

At St. George's Hospital it is the almost invariable custom to open the sac in every case of operation for strangulated hernia. Thus in a paper in the 'Medical Times and Gazette,' vol. i., 1861, it is stated by Mr. Cooper and Mr. Holmes that in 121 cases there were only 4 in which the sac was not opened. And Mr. Haward, writing in the 'St. George's Hospital Reports,' vol. i., 1866, increases these numbers to 181 and 6 respectively. In the series of 121 cases the mortality was 30·5 per cent.; and the authors compare this death-rate with that in 100 cases at the London Hospital, in more than half of which the sac was not opened, and in which the mortality was 33 per cent. The conclusion drawn by Mr. Cooper and Mr. Holmes from these figures, and from an examination of the cases at St. George's Hospital, is that the opening of the sac has no effect either on the death-rate or on the time required for the healing of the wound, and Mr. Haward expresses his belief that the balance of advantage certainly lies with the operation in which the sac is laid open. Although the custom at St. George's Hospital is stamped with very high authority, it may be doubted whether it is right on such a point to follow anything like a uniform rule of practice. Cases of hernia present an endless variety: every example therefore demands separate consideration. It seems inconceivable that in the 181 cases mentioned by Mr. Haward there were only six in which it was to the patients' advantage not to open the sac, and it is needless to say that in any given case the welfare of the individual is the only guide that should be followed. In other words, we must descend from the general

to the particular. The mortality in the 121 cases at St. George's was slightly below that in the 100 cases at the London Hospital, but if the cases of umbilical hernia be thrown out of both tables—and they have no bearing on the present question, for the sac was opened in all of them—the death-rate for the inguinal and femoral kinds is 30 per cent. in both series. And it follows that if any advantage was gained in some cases by opening the sac, it was counterbalanced in others, for the final result is the same. Each patient, it would seem, will have the best chance of recovery secured to him if his case is carefully considered on its own individual merits, under the guidance of such rules as are laid down in the text. It may, however, be freely granted that in every doubtful case the sac should certainly be opened.

*Note XIV., page 150.*

Probably the injury inflicted by acute, or long-continued strangulation on the vaso-motor system of nerves distributed to the blood-vessels and muscular wall of the intestine may explain both the œdema of the coats of the gut, and the effusion which takes place into the sac; and also the paralysis of the strangulated portion which may remain after reduction has been accomplished.

*Note XV., page 150.*

In a valuable paper on 'The Surgical Treatment of Peritonitis' in the 'St. Bartholomew's Hospital Reports,' vol. ix., Mr. Thomas Smith, referring to the good results obtained by washing out the cavity of the peritoneum in peritonitis following ovariectomy, asks whether the same treatment might not prove equally serviceable in some instances in which peritonitis occurs as a complication of strangulated hernia.

*Note XVI., page 344.*

The two following specimens are in the Museum of the College of Surgeons:

No 1. A hip-joint, in which after the head and upper part of the neck of the femur had been destroyed by ulceration, the shaft was drawn up, so that the remains of the neck rest upon

the ilium just above the brim of the acetabulum. The capsular ligament has been removed: the acetabulum is filled with fibrous tissue. The walls of the femur are very thin, and light. From a woman aged 70. Ten years before her death, she had an apparently scrofulous affection of her hip. Abscesses communicating with the joint opened in the groin, and ultimately the limb became much everted and shortened. The parts, however, ultimately healed. The patient died of apoplexy. After death her lungs and liver were found tuberculous.—*Path. Series, Cat. Supplement I. No. 936.*

No. 2. 'The five upper cervical vertebræ, and the condyloid portion of the occipital bone affected at several points with the ulceration (caries). The right transverse process, and both upper and lower articular surfaces of the same side of the atlas are entirely destroyed. The disease has also affected the corresponding condyle of the occipital bone, and the articular surface and side of the body of the axis, the right transverse process, and side of the body of the third and the left occipito-atlantal articulation. These parts were removed from the body of the Very Rev. W. Buckland D.D., Dean of Westminster, who died, æt. 73, August 14, 1856. No symptoms manifested themselves during life but those attributed to melancholia.'—*Loc. Cit. No. 3406.*

*Note XVII., page 350.*

Strong confirmation of these observations has been met with at the Hospital for Sick Children. The following table compiled from the records of fever occurring among the in-patients is sufficient for the purpose of illustration. The cases are placed as they stand, entered in different years, in the Wardbook:—

No. of Case	Sex and Age	Date of Admission	Nature of Operation	Date of Operation	Date of Attack
1	f. 1 <sup>y.</sup> 9 <sup>m.</sup>	July 22	For Cleft palato	July 23	July 24
2	f. 3	Sept. 6	" " "	Sept. 8	Sept. 10
3	m. 3	Sept. 3	" " "	Sept. 10	Sept. 11
4	m. 2	Jan. 31	" Webbed fingers	Feb. 14	Feb. 16
5	m. 3 <sup>y.</sup> 6 <sup>m.</sup>	June 24	" Necrosed tarsus	June 30	June 31
6	m. 9	July 6	" Fatty tumour	July 8	July 9
7	m. 4 <sup>y.</sup> 6 <sup>m.</sup>	Oct. 31	" Necrosed tarsus	Nov. 2	Nov. 4
8	m. 4	June 16	" Ischio rectal abscess	June 16	June 18

And Mr. Thomas Smith tells me he has performed Lithotomy on forty-three children under ten years of age, and of these seven had scarlatina. In CASE 1 :—the eruption appeared on the day after the operation, and there were rigors, and a temperature of  $104^{\circ}6$ . CASE 2 :—eruption on second day, followed by general desquamation. CASE 3 :—eruption on second day, death on thirty-first day from albuminuria, and anasarca. CASE 4 :—eruption very soon after operation, followed by desquamation. CASE 5 :—eruption on third day, severe albuminuria. CASE 6 :—slight eruption very soon after operation, followed on thirteenth day by general desquamation, and by severe albuminuria. CASE 7 :—eruption on second day, beginning at the wound, and spreading over trunk and limbs. This proportion of seven in forty-three cases is very high, yet the real proportion was even larger than these figures represent, for among the thirty-six children that escaped there were, as Mr. Smith remarks, no doubt some who, having already had the disease, were in great part if not completely protected against a second attack.

It has been questioned whether the affection is true scarlet fever. In many instances, however, it certainly is, for its features are well marked and characteristic. Of others, which might be very doubtful if seen as isolated cases, Dr. Gee, whose authority will be recognised, and who has closely studied the subject, says in his article in ‘Reynold’s System of Medicine,’ ‘that the disease really is scarlet fever seems to be proved by the following observations: first, it occurs in epidemics (of scarlatina): secondly, that in a given epidemic a severe case occasionally relieves the monotonous recurrence of the very mild forms: thirdly, that a precisely similar scarlatinilla attacks, in the same epidemic, patients who have not been subjected to operation, and who have no open sore: and lastly, by way of a veritable experimentum crucis, that however freely these patients are exposed to ordinary scarlet fever afterwards, they do not contract that disease.’ The cases related above illustrate many of the points relied on by Dr. Gee. In not a few the attack was severe and followed by albuminuria: the majority were seen



during the prevalence of scarlet fever in town, and almost all, if not every one, as soon as the illness appeared, were transferred to a ward used for the treatment of scarlet fever, and which generally contained recent cases; yet I believe none of the patients suffered from any further contagion. In expressing my own opinion that the disease is scarlet fever I am conscious of being strongly biassed by the belief of those in whose sound judgment I place complete reliance; but I think an independent examination of the facts could scarcely lead to any other conclusion.

Sir James Paget has mentioned two views as to the explanation of this connection between operations and the appearance of scarlet fever; and the evidence derived from the cases related above goes to prove that both are correct, though of course in different cases. 'That a peculiar liability to contagion is induced by an operation, and that the poison produces its specific effects in much less than the usual period of incubation' seems clear from such cases as the following. A boy (case 4 in the table) was admitted on January 31. On February 14 he underwent an operation on a deformed hand, and on the 16th the rash appeared. No scarlet fever had occurred, so far as his parents knew, near his residence for some time before he came into the Hospital, and, indeed, he had been in for a period that was more than long enough to complete the incubation of the disease, without showing any symptom of illness. But on the same day (Feb. 14) on which his operation was performed a boy, who was admitted into the ward with bronchitis, was found three hours later with the eruption of scarlet fever. Again, a child was seized with scarlet fever the day after an operation had been performed on her mouth. Her mother knew nothing of any source of previous infection, but the surgeon who performed the operation was at the time nursing his own children with the disease. Now it seems nearly certain that the first child derived the fever, either just before or just after his operation, from the patient in whom the rash was just coming out: and that the second was infected at the very time from the clothes of the surgeon who performed the operation. On the other hand, in several instances very careful search has

failed to discover any source of recent infection ; and in such the only probable explanation seemed to be that, as Sir James Paget suggests, the patients 'had previously imbibed the poison, but would not have manifested its effects so soon, if at all, unless their health had been exhausted or disturbed.'

The interval between the operation and the appearance of the rash has been quite as short as that recorded in the text. In several the eruption has come out on the next day, and the period (from twelve to thirty-six hours, Gee) by which vomiting and high temperature commonly precede the eruption has been comparatively seldom distinctly marked.

To anticipate the possible objection that fever may have been already on the point of breaking-out when the operation was performed, I may state that this source of fallacy has been carefully borne in mind: it is a standing rule to examine the temperature, and if it is found in any degree above the natural standard the operation is invariably postponed.

Scarlet fever apparently stands alone among the eruptive fevers in its proneness to attack patients immediately after operations ; for although outbreaks of measles have been noticed under similar circumstances, their occurrence has been so rare that they may well be regarded as mere coincidences ; and the same may be said of chicken pox.

Great help may be gained in the study of this subject from a very able and valuable paper (in the 12th volume of the 'Obstetrical Society's Transactions') by Dr. Braxton Hicks, in which he discusses the occurrence of scarlet fever immediately after parturition, with the purpose of investigating its relation to puerperal fever. In this essay, and the cases that accompany it, Dr. Hicks shows: I. That patients are frequently attacked with scarlet fever after labour. II. That the disorder appears very speedily—generally within four days. III. That the usual premonitory symptoms are often absent. IV. That contagion is in some cases conveyed at the time of labour, in others that it has, so far as can be ascertained, occurred some time before. V. That in many instances the disorder deviates widely from the normal type.

# INDEX.

## ABD

**ABDOMEN**, condition of, in strangulated hernia, 112  
**Abdominal pulsating tumour**, 237  
**Abscess**, residual; *see* Residual abscess  
**Acupressure**, 76  
**Acute disease**, operations during, 20  
**Acute necrosis**, followed by chronic pyæmia, 161; recovery from pyæmia after, 161  
**Adhesions formed in joints after long rest**, 97  
**Age**, its influence on operations, 5  
**Agricultural districts**, patients from, 17  
**Ague**, operations during, 20  
**Ague-fits resembling pyæmic rigors**, 20  
**Albuminuria affecting results of operations**, 39, 56  
**Amputations for injury and disease compared**, 3; in the strong and the feeble contrasted, 3; in printing-office boys, 4; secondary, 21; dangerous during cellular inflammation, 21; for compound fracture, 21; during acute disease, 21; during acute and chronic pyæmia, 22; in the old, 33  
**Amyloid disease of liver**, 29, 403  
**Anæmia**, operations during, 47  
**Aneurism**, mimicry of, 238, 241; in abdominal aorta, 238; condition of vessels, 239; rules for diagnosis of, 240  
**Angular curvature of the spine in the old**, 224, 415  
**Ankle**, stiffened by involuntary muscular action, 89  
**Ankylosis treated by bone-setters**, 85  
**Anstie, Dr.**, on hypochondriasis, referred to, 269  
**Antagonism in disease**, 389  
**Antiseptic treatment**, Mr. Lister's, 76  
**Arteries**, degeneration of, affecting operations, 32; heal slowly, 33  
**Atrophy**, reflex, in joint disease, 209

## BRI

**BACKACHES**, 220-224  
**Baker, Mr.**, his case of necrosis of femur, 342  
**Bandages**, tight, over joints often mischievous, 210  
**Barwell, Mr.**, on gonorrhœal rheumatism, 171  
**Bedrooms**, water-closets in, 67  
**Biceps**, slipped tendon of, 86  
**Billroth** on dissection wounds, referred to, 338  
**Birkett, Mr.**, on hernia, 123  
**Bladder**, stammering, 78  
**Bleeding**, its value in strangulated hernia estimated, 143  
**Blizard, Mr.**, fatal operation by, 65  
**Bones**, disease of, in patients with amyloid disease, 29; chiefly affected in some cases of chronic pyæmia, 165; injury of, followed by neuromimesis, 194; residual abscess in, 316  
**Bone-setters**, treat fractures, dislocations, ankyloses, slipped tendons, 85, 86; their manipulations, 84; cases they cure, 84; their results, 99; in cases of muscular rigidity of joints, 91; in sprains, 91; treatment of cold joints, 93; their audacity, 95  
**Bowels**, not to be disturbed after hernia-operations, 145; condition of, in strangulated hernia, 111, 112  
**Boys**, amputations in, 4; mimicry of joint-disease in, 203  
**Breast**, operations on, during lactation to be avoided, 49; mimicry of cancer in, 241; neuralgia of, 243; neuralgia of, associated with gout, 243; tumours of, method of examining, 244  
**Breathing**, its relation to the pulse, 31  
**Brinton, Dr.**, his paper on disease of the œsophagus, 83

## BRO

- Brodie, Sir B., on hysterical joints, 196 ; on relaxed, loose joints, 211 ; on liquor potassæ in cancer, 388
- Bronchitis, complicating operations, 34
- Brown-Sequard, Dr., on transmission of the effects of injuries to offspring, 363
- Budd, Dr., on malignant pustule, 266
- Burning soles a sign of gout, 373
- Butlin, Mr., case of ankylosis at knee from long rest, 97
- Bursæ, imitated by residual abscess, 319
- CALAMITIES** of surgery, 51 ; not always accidents, 55 ; rules for avoiding, 60-64
- Callender, Mr., his statistics of amputations, 4
- Cancer, mimicry of, 181, 183, 241 ; in the breast, 244 ; in the tongue, 244, 245 ; evolution of, 364, 366 ; brought out by injury, 377 ; its climax in old age, 380 ; mistaken for scrofula, 380 ; relieved by liquor potassæ, 388 ; variation of pain in, 389 ; does not advance *pari passu* with tuberculosis, or syphilis, 389
- Cancerous persons, operations on, 13
- Carbolised catgut ligatures, 76
- Carbuncle, treatment by 'doing nothing,' what this means, 252 ; incisions often fail to stop spreading, or pain of, or to hasten the healing of, 254, 256 ; abortion of, 257 ; crucial incision of, its value discussed, 258, 259 ; limited incision often useful, 258 ; high feeding, and stimulants in, unnecessary, 259, 260 ; amount of food required, 261 ; local treatment of, 262 ; medicines, fresh air, 264 ; mortality of, 265 ; less fatal now than when crucial incisions were used, 266 ; carbuncular inflammation of the lip, 266 ; frequently fatal, 267 ; followed by pyæmia, 267
- Carbuncular inflammation of the lip, 267 ; true nature of, 267
- Care after operations, 76
- Carpus, mimic disease in, 197
- Cases, method of recording, 49 ; that bone-setters cure, 84
- Catgut ligatures, 76
- Catheterism, need for care in, 43, 57 ; dangerous in the old, 43, 47 ; not rarely fatal, 69 ; often mischievous, 69 ; followed by chronic pyæmia, 166
- Caustic, removal of scalp-cysts by, 70 ; treatment of hæmorrhoids with, 71

## CON

- Cautery, actual, for hæmorrhoids, 71
- Chambers, Dr., on invalids, 17
- Children, operations on, 5, 18 ; bear pain ill, 5, 399 ; little liable to pyæmia, except in acute necrosis, 5 ; amyloid disease in, 29, 403 ; rigid joints in, after hurts, 90 ; chronic pyæmia in, 170 (note) ; nervous mimicry in, 204 ; phlebitis in, 309 ; narcotics for, 400 ; loss of blood in operations on, 400 ; risks of operations in, 401 *et seq.*
- Chloride of zinc for wounds, 76
- Chloroform in heart disease, 30 ; death under, 51 ; its use in neuromimesis, 201, 229.
- Chorea, diagnosis of, from joint disease, 212.
- Chronic pyæmia, relations of, to acute, 155, 164 ; chiefly affecting the bones, 165 ; after acute necrosis, 161 ; affecting a single tissue, 165 ; uniform method in, 165 ; after parturition, 165 ; following stricture, 166 ; lithotripsy, 167 ; inflamed inguinal glands, 169 ; propositions concerning, 170 ; in children, 170 (note) ; affinities of, 171 ; prognosis of, treatment of, 171
- Circulation feeble, in nervous mimicry, 188
- Cold applications mischievous in nervous mimicry, 247
- Cold-blooded persons, operations on, 18 ; recover from injury slowly, 395
- Colic, preceding strangulated hernia, 107
- Constipation, its importance often overrated, 27 ; too profuse action after, 28 ; in neuromimesis, 184
- Constitution, the nervous, compared with that in gout or syphilis, 175 ; often inherited, 175 ; patients who display it, 175 ; in neuromimesis, 188
- Constitutional diseases, 353 ; importance of lesser signs, 354 ; health characters, compared with mental characters, 355 ; meanings of names, 356 ; inherited constitutional diseases, 356 ; diathesis, dyscrasia, 356 ; constitutional disturbance, 356 ; tendencies to disease, 357 ; their transmission to offspring, 357 ; progressive changes in, as age advances, their peculiarities ; constitutional diseases pervade all parts of the system, 358 ; variation of, in transmission, 360 ; illustrations from gout, scrofula, &c. 361 ; evo-

## CON

lution of diseases, 362; variations in the form of hereditary diseases in different generations, 362; relations of leprosy to keloid, 362 (note); Dr. Fagge's papers on, 362 (note); evolution of disease, 363, transmission of the effects of injuries to offspring, Dr. Brown-Sequard's experiments, 363 (note); lithic acid diseases in gouty families, evolution of cancer from innocent tumours, 364; Darwin's researches, 364 (note); evolution of syphilis, 365; relation of syphilis and scrofula, 365; evolution of cancer gout and tuberculosis, 366; evidence of inheritance difficult to obtain, 367; inherited qualities, not always constitutional, 367; mutations of local and constitutional diseases, 368, as seen in chronic rheumatic arthritis, 369; lesser signs of constitutional disease, 369; pathognomons of morbid constitutions, 370; value of lesser diseases for diagnosis of constitutions, 372; minor signs of gout, 372; of tuberculosis, of scrofula, 373; significant groups of disease, 375; constitutional defects brought out by injury, or disease, 376; by fever, 378; by mental trouble, 379; need for careful treatment of slight injuries, 378: constitutional origin of fever-sequelæ, 379; time in constitutional diseases, climax, decrease, revival, 380; may be out-lived, 381; nervous and scrofulous constitutions outlived, not so the gouty, 382; amputations in scrofula, 382; late reappearance of syphilis; scrofula in the aged, inveterate form of, 384; successions and combinations, of constitutions, 384; scrofula, gout, cancer in succession, 385; methods of life, 385; evidence of constitutional succession, co-existence, 387, distinct from combinations; antagonism in disease, 389; combinations, 390; syphilis with scrofula, tuberculosis, or gout, 391; use of mercury, combination of gout and rheumatism, 393; hybridity in disease, 393; lesser constitutional conditions, 394; cold-blooded persons, weak constitution, 396; long-lived, short-lived families; unpunctuality in constitutions; delayed puberty; prevailing death-periods in families, 397  
 Constitutional peculiarities, their importance in operations, 2

## DIS

Consulting-rooms, private, danger of operations in, 65  
 Coughing, painful, in spinal disease, 226  
 Crimean War, dysentery during, 26  
 Croup, operations in, 22  
 Curling, Mr., on the repair of wounds in the insane, 407; on slipped peroneal tendon, 408  
 Cyst, removal of, fatal result, 65; removal by caustic, 70

**D**ARWIN'S researches on evolution referred to, 364  
 Death, fear of, affecting operations, 44; under chloroform, 51  
 Defæcation, stammering in, 83; semen passed during, 273  
 Deglutition, stammering in, 82  
 Delirium tremens, operations during, 45; after operations, 46; treatment of, 46  
 Deltoid, wasting of, in diseased shoulder-joint, 209  
 Demarquay, M., on slipped tendons, 408  
 De Morgan, Mr., on the use of chloride of zinc in wounds, 76  
 Diarrhœa, operations during, 26; preceding descent of herniæ, 26; dangerous in children and old people, 27; preceding strangulation of herniæ, 107; after strangulated hernia, 146  
 Diet, after strangulated hernia, 146  
 Dieulafoy on aspiration, 412  
 Digestion, feeble in old people, affecting operation, 26  
 Diphtheria, operations during, 22  
 Disease, amputations for, 3; acute, amputations during, 20; present treatment of, 143; old fashioned treatment of wounds by bleeding, 143; evolution, and involution of, 363; mutations between local and constitutional, 368; bringing out constitutional defects, 376  
 Dissection, poisons, 321; wounds, dangers of, improved treatment of, 321; author's own case, 322; mode of inoculation; a fatal case (note); nature of the virus, 322; acquired immunity, 323; Dr. Wilks on warts following, 324; loss of immunity from, 327; Dr. Symes Thompson's case, 327; irritating pus in, 334; erysipelas following, 334; crisis in illness following, 335; treatment, 335; complications modified by constitutional peculiarities, 336

## DOU

Douche, cold, sometimes hurtful, 93  
 Dreams, in sexual disorders, 285; their relation to emissions, 285; mental treatment of, 287  
 Drunkards, dangers of operations on, 15, 56  
 Dysentery, operations during, 26  
 Dyspepsia, operations during, 25

**EATING**, excessive, hurtful for operations, 16

Elastic knee-caps, often do harm, 210  
 Elbow-joint, internal derangement of, 87; stiffened by involuntary muscular action, 89

Election, place of, in hypochondriasis, 273

Electricity, for hysterical joints, 95

Embolism in gouty phlebitis, 295

Emissions, 275; frequently harmless, 276; caused by irritable spinal marrow, 276; accompanying symptoms, 277; the consequences, not the cause of nervous disorders, 279

Emphysema, of lungs, affecting operations, 34; overstrangled hernia, 109

Epigastric artery, wound of, in operations for hernia, 141

Epilepsy, its relations to sexual disorders, 288, 289

Erichsen, Mr., on hernia, 123 (note); on damaged intestine in strangulated hernia, 140; on dissection-wounds, 338

Erysipelas, operations during, 21; following albuminuria, 56; transmutability of, with pyæmia, referred to, 164

Esmarch's elastic ligature, 76

Estimates, various, of success and failure, 75

Ether, preferred for operations, 52 (note)

Exanthemata affecting operations in children, 401 (note)

Excretion, importance of, after operations, 50

Extensors of fingers, slipped tendons of, 86

**FAILURES**, various estimates of, 75

Fat persons, operations on, 14

Fayrer, Dr., on operations on native Indians, 405

Feet, cold, or painfully hot, in nervous mimicry, 189

Femur, fracture of, followed by ankylosis at knee, from rest, 97; swelling of, in chronic pyæmia, treated with liquor potassæ, 166; quiet necrosis of, 342

## HER

Fergusson, Sir William, his careful choice of apparatus for operations, 73

Fever, discovering constitutional disease, 378; sequellæ of, their constitutional origin, 379

Flower, Professor, on a skeleton at Marburg, 206

Food, excess of nitrogenous, hurtful for operations, 16

Fracture, compound, amputation in, 21  
 fractures treated by bone-setters, 85

Frictions, over injured joints, 94

**GALVANISM**, in nervous mimicry, 247

Gant, Mr., on constitutional diseases, 375 (note)

Gimbernath's ligament, in femoral hernia, 132

Girls, nervous mimicry in, 205, this promoted by education, 231

Gonorrhœal rheumatism, affinities of, with chronic pyæmia, 171

Gout in injured joints, 95; combined with neuromimesis, 188; evolution of, 366; minor signs of, 372; brought out by injury, 377; climax in middle life, 380; following scrofula, 386

Gouty persons, operations on, 12; phlebitis, see Phlebitis; constitution not outlived, 382

Gull, Sir William, on hypochondriasis referred to, 269

**HAMILTON**, Dr. Frank, on slipped biceps-tendon, 409

Hæmorrhage, its effect on the pulse and breathing, 32; in children, 400

Hæmorrhoids, ligature of, sometimes fatal, 70; treated with caustic, 71; with actual cautery, 71

Haward, Mr. Warrington, on hernia, 123, 413

Health best standard for operations, 2, 5; general in neuromimesis, 187

Heart, disease of, affecting operations, 30

Hernia, strangulated, 101; statistics of operations, 101; grounds for operating on, 102, *et seq.*; signs of strangulation; means of reduction, 102; pulse and respiration in, 103, 115; doubtful signs of strangulation, 103; their great importance, 104; local signs; general symptoms, 104; irreducibility 104; unusual size, 104, 107, 108; hardness of the tumour, 104, 108; inflammation of, or over the sac, sloughing of integuments over the sac

## HER

unassociated with strangulation, 105; diagnosis between strangulated and inflamed, 106; strangulation preceded by diarrhœa, 107; by pain; presence of obscure swelling, 109; emphysema of integuments over, 109; caution against overlooking, 110; useless operations on, 110; double, operations on both, 110; local signs, less severe in the old than in the young, 111; in old than in recent cases, 111; omental, signs of strangulation in, little marked, 111; inaction of the bowels 111; vomiting a very important sign, 113, 115; aspect of the patient, 116; attempts at reduction, 117; their method, 117; when improper, 118; irreducible, rule for operating on, 118; accessories to reduction, warm bath, its management, 119; opium, 120; enemata, 120; chloroform, 121; need for gentleness, 121; question of delay before operating, 123; ice, 123; tobacco, posture, cupping, &c., 124; partially reducible, 124, 135; reduction *en masse*, 125; seat of stricture, 127; opening of the sac, 127, rule for, 128; Lawrence on, 129; incisions in operations on femoral, inguinal, umbilical, 129; seat of stricture in the various forms, 130, 134; Mr. Luke's rule for ascertaining this, 130; treatment of the sac, rules for exposing, 131; partial reduction, 135; omentum remaining in the sac after operation; management of its contents, characters of fluid in, 135; fluid from peritoneum, 137; treatment of omentum, 137; of damaged intestine, 138; complications referred to, hydrocele, varicocele, misplaced testis, wounded intestine, 140, 154; after-treatment changed in late years, 142; treatment by bleeding, by purgatives, 143; signs of relief from strangulation, 145; action of bowels after operation, 145; diet after strangulation; colic and vomiting following, 146; not relieved by operation, 148-151; conditions, treatment, 149; peritonitis after operation, 150; troubles following operation, 151; acute inflammation of the sac, symptoms, treatment, 151, 153; inflamed cellular tissue around, sloughing of scrotum, 154

Hewett, Mr. Prescott, on pyæmia, 169, (note)

Hey's ligament in femoral hernia, 132

## INT

Hilton, Mr., on the temperature of inflamed joints, 215 (note)

Hip-joint, internal derangement of, 87; stiffened by involuntary muscular action, 89; nerve mimicry in, 197, 209; residual abscess after disease of, 315

Holmes, Mr., on hernia, 413 (note)

Hood, Dr. Wharton, on bone-setting, 100

Hospitals, provincial, mortality in, 16

Hot spongings in neuromimesis, 246

Houses, unhealthy, operations in, 67

Hutchinson, Mr., on hernia, 411

Hybridity in disease, 393

Hypochondriasis, 173; sexual, characters of, 268, 273; dependent on ignorance of sexual things, 269; semen in the urine generally a fallacy, 270, often only mucus, 271, 272; 'place of election,' 273; mucus from urethra, 273; varicocele, 274; various terrors, 275; likeness to nervous mimicry, 278; most common in men, 278 (note); treatment, 280; ending in insanity, 280; impotence in, 281; varieties of impotence, 281; masturbation, 284; dreams, 285; mental treatment, 287; relation of insanity to sexual disorders, 289

**I**MAGINATION in nervous mimicry, 184

Imitation provoking nervous mimicry, 194

Impotence, not due to varicocele, 68; definition of, 281; various causes of, 281; often imaginary, 282

India, natives of, their tolerance of injury, 17, 405

Inflammation, cellular, amputations during, 21

Inflamed parts, danger of operations on, 65

Inguinal glands, suppuration in, followed by chronic pyæmia, 169

Inheritance in nervous mimicry, 185

Injury, amputations for, 3; provoking neuromimesis, 198, 204; bringing out constitutional defects, gout, &c., 276

Insane persons, operations on, 45, 407; not generally subject to nervous mimicry, 184

Insanity following operations, 46; in connection with nervous mimicry, 185; its relation to sexual disorders, 280, 291

Integuments sloughing over herniæ, 105



## INT

Intemperate, the, dangers of operations on, 14  
 Internal derangement of joints, knee, jaw, elbow, hip, 87  
 Intestine, management of, in hernia operations, 138; its characters when long strangulated, 138; wounded in hernia-operations, 140; powerless after strangulation, 151, 414; rupture of, after operation, 151  
 Intestinal distension in nervous mimicry, 184  
 Invalids, operations on, 17  
 Iodides, in treatment of nervous mimicry, 248  
 Iron in nervous mimicry, 248

**J**AW-JOINT, internal derangement of, 87; locked, treatment of, 88  
 Jenner, Edward, his gouty eczema, 373  
 Joints, disease of, associated with amyloid liver, &c., 29, 403; injured, treated by bone-setters, 84; internal derangement of, 87; stiff, from involuntary muscular action, 88; rigid, after hurts in children, 90; shamming disease of, 91; injured, treated by cold douche, 93; by shampooing, warmth, and frictions, 94; rules for exercise, 94; habitually cold, 93; treated by too long rest, 93, 96; over-sensitive after rest, 93, 97; constitutional treatment of, 95; hysterical, cured by Mesmerism, 95; ankylosed, after long rest, 97; gouty, strumous, hysterical, their movement after injury, 98; frequency of mimic disease of, 181, 187; mimic disease of, in children, 187, 204; mimicry of disease after injury, 194; disease of, mistaken for mimicry, 196; wasting of limbs in, 208, 210; not deformed, simply by posture, 206; laxity of, 211; disease of, imitated by chorea, 212; residual abscess in, 213, 314; temperature of diseased, 215; Mr. Hilton on, 215; relapsing inflammation of, 310; loose bodies in produced by quiet necrosis, 343

**K**ELOID, its relations to leprosy, 362 (note)

Kidneys, disease of, affecting operations, 39, 403; lithotomy and lithotripsy in, 41

Kneejoint, internal derangement of; signs of, 87; stiffened, by muscular

## MEN

contraction, 89; ankylosed, after long rest, 97; nervous mimicry in, 197

**L**ALLEMAND on spermatorrhœa, his account an exaggeration, 288

Laurie, Prof., on phlebitis, 307

Lawrence, Sir W., on hernia, 123 (note), 129, 140

Leprosy, its relation to keloid, 362 (note); its distant inheritance, 367

Life, various rates of, 397

Ligature, carbolic catgut, 76; Es-march's elastic, 76

Limbs their posture in neuromimesis, 202; wasting, in joint disease, 208

Limping in cases of damaged joints, in neuromimesis, 211

Lip, carbuncular inflammation of, 266; this frequently fatal, 267; true nature of, 267

Liquor potassæ, in chronic pyæmia, 166, 171; in cancer, 388

Lister, Mr., his antiseptic method, 76

Lithic acid diathesis in neuromimesis, 248

Lithotomy in those with kidney disease, 41; followed by chronic pyæmia, 159

Lithotripsy, in those with kidney disease, 41; followed by chronic pyæmia, 167

Liver, disease of, affecting operations, 29, 403

Local disease, operations in presence of, 24

Locality in nervous mimicry, 195

Locked-joint, treatment of, 87

Long bones, residual abscess in, 316

Loose cartilages in joints, signs of, 87

Ludlow, Mr. Harvey, on malignant pustule, 266

Luke, Mr., on the seat of stricture in hernia, 130

Lupus exedens in septum nasi, and other parts, 375

**M**ALIGNANT pustule, 266

Mammary gland, method of examining, 244

Mania, religious, following operations, 47

Masturbation, mischiefs following, 284, 289; relations to insanity, 289

Maturity, delayed, 397

Meat, excess of, hurtful for operations, 16

Melancholy, 173

Menstruation, operations during, 48

Mental distress, a cause of nervous mimicry, 192; bringing out constitutional defects, 379



## MES

- Mesmerism, in hysterical joints, 95  
 Metastasis, in gouty phlebitis, 294  
 Mimicry of disease in children, 182, 187  
 Missisquoi water in cancer, 388  
 Mucus, vesical, mistaken for spermatorrhœa, 272  
 Muscular rigidity of joints, treatment of, 89  
 Muscles, wasted by pressure, 210; enlarged, after phlebitis, 307

**N**ARCOTICS, in nervous mimicry, 246; use of, in children, 400  
 Necrosis, acute, in children, followed by pyæmia, 5; quiet, 339; of the femur, 342; without evidence of inflammation, 342; circumstances attending, 343; pathology of, diagnosis, 343  
 Nervous mimicry of organic disease, 172; aggravating trivial disease, 172; diagnosis of, its relation to hysteria, 175; characters of pain in, 176; painful sense of fatigue in, 177, 224; does not produce real disease, deranged circulation in, 177; flushings and pallor in, 178; mental state in; egotism, want of will in, 180; belief in mesmerism, and spiritualism, 181; of joint disease, 181, 196, 204; of spine disease, 181, 187, 220; of cancer, 181, 241; not always mental, 182, 186; intestinal distension, constipation, condition of spinal and ganglionic nervous systems in, 184, 189; not common in the insane; effect of imagination in producing, 184; inheritance of; its connection with insanity; with emotional and convulsive hysteria, 185; with neuralgia, 185, 243; with paraplegia and epilepsy, 185; importance of family history in diagnosis, 186; influence of age, sex, and culture, 187; in the gouty, tuberculous, scrofulous, 187, 188; feeble circulation in, 188; cold or hot feet in, 189; nutrition of parts in, 190; temperature in, 190, 191, 218; following fever, 190; uterine and ovarian functions in, 191; exciting causes of, 192, 197; of stone after Napoleon's death, 194; after injury of bones or joints, 194, 204; locality in, 195; a constitutional condition, 195; diagnosis of, 198; imitating inflammation, 198; pain in, 198; chloroform, its value for diagnosis, 201, 204, 237; rigidity of limbs

## OPE

- in; posture in, 202, 204; inconsistency of symptoms, 203; does not distort joints, 205; swellings or sensations of swellings of joints in, 213; temperature of joints in, 215; paraplegia in, 231; of tumours, 233; diagnosis of, 236; abdominal pulsating tumour, 237; of aneurism in abdomen, 237, 238; of subclavian; of innominate, 238; condition of vessels in, 239; neuralgia of the breast, 241, 244; mimicry of cancer of tongue, 244, 245; treatment of mimicry as to (a) local symptoms; (b) constitutional state; (c) nervous constitution, 245, 251; use of narcotics in; warmth, hot spongings, &c., 246; cold, and local bleeding do harm; rest after exercise, galvanism, 247; treatment by means directed against constitutional defects, as gout, scrofula, &c., 248; food, stimulants, &c., 249; judicious education in, 251  
 Neuralgia, amputations in former times for, 382  
 Neuromimesis. *See* Nervous mimicry  
 Nitrogenous food, excess of, hurtful for operations, 16  
 Nitrous oxyde for anæsthesia, 52 (note)  
 Nocturnal emissions. *See* Emissions  
 Nutrition unaffected in nervous mimicry, 190

**O**BTURATOR artery wounded in hernia-operations, 141  
 Esophagus stammering, its diagnosis, 82  
 Old persons, operations generally dangerous in, 5, 33; differ in their powers of bearing operations, 6, 7; need special management after, 8  
 Omentum, treatment of, in strangulated hernia, 137  
 Operations, the various risks of, 1; standards of health for, 2, 5; in young children, dangerous by shock, 4; patients who bear them best, 5; influence of age on, 5; dangerous in old people, 5, 33; on the scrofulous, 8 on the syphilitic, 11; during acute and chronic rheumatism, 12; on the gouty, 12; the cancerous, 13; the plethoric, 13; the over fat, 14; the intemperate, 14, 15; on teetotallers, 16; on large eaters, 16; on persons from the country, natives of India, invalids, 17; on the 'cold-blooded,' 18; the nervous, 19; in acute disease, 20; during erysipelas, 21; in pyæmia

## OPE

22; diphtheria, croup, peritonitis, 22; in dyspepsia; vomiting after, 25; during dysentery, diarrhœa, 26; state of bowels after, 28; affected by disease of liver, 29; of heart, 30; on those with quick or slow pulse, 31; affected by disease of arteries and veins, 33; by chronic bronchitis and emphysema, 34; by phthisis, 35; by kidney disease, 39; by disease of the nervous system, 44; fear of death in, 44; capacity for sleep after, 44; on the insane; during delirium tremens, 45; followed by insanity, 46; during anæmia, 47; during menstruation; during pregnancy, 48; during lactation, 49; on the breast, during lactation, dangerous, 49; minor operations sometimes fatal, 54; cases, 54, 59; rules for, 59, 73; in consulting rooms, 65; dangerous on inflamed parts, 65; in unhealthy rooms, 67; never to be done unless essential, 68; bloodless, to be chosen, if possible, 70; care in the last stages of, 71; oversights during; well-chosen appliances for, 73; diminished mortality after, 76

Opium, its value in children, 400

Ovarian functions in nervous mimicry, 191

Oxalic diathesis in neuromimesis, 248

Ozena in scrofula, 374

**P**AIN ill borne by children, 5, 399; in nervous mimicry, 198; with stiffness in joints, 202

Palms, burning, a sign of gout, 373

Paralysis, relation to sexual disorders, 288

Parturition followed by chronic pyæmia, 165

Patients best fitted for operations, 5

Peaslee, Dr., on operations on blacks, 406

Pelvis, mimic disease of, 187

Perforation of intestine after hernia-operations, 151

Peritonitis, operations during, 22; after hernia-operations, 151; forms of, sthenic, asthenic, their respective treatment, 152

Peroneus, displacement of its tendon, 86, 408

Pharynx, granular, in tuberculosis, 374

Phimosis, operations for, 68

Phlebitis, operations during, 33; gouty and other forms, 292, 293; characters of gouty variety, 294; this often metastatic and symmetrical, symptoms of,

## RES

294; most common in lower limbs and in superficial veins, 294; dangerous by embolism, 295; often hereditary, 297; treatment, 297; phlebitis in branches of the venæ cavæ, 298; in blood poisoning, 302; often recurring, 304; affecting a portion of a single vein, 305; followed by enlargement of muscles, 307; following typhus, 307; in acute pyæmia, 308; after typhoid, 309; in young children, 309

Plethora affecting operations, 13

Popliteus, slipping tendon of, 86

Posture of limbs in neuromimesis, 202

Power, Mr. H., on disease of œsophagus (case), 83

Pregnancy, operations during, 48

Pressure causing muscular atrophy, 210

Printing-office boys, amputations in, 4

Psoas muscles, residual abscesses in, 313

Puberty, delayed, 397

Puerperal fever, its relation to pyæmia, 164

Pulse, rate of, in relation to operations, 31, 32; ratio to breathing, 31; hastened by hæmorrhage, 32; in strangulated hernia, 103, 115; compared with breathing, and temperature in nervous mimicry, 189

Purgatives, in their relation to strangulated hernia, 143

Pyæmia, rare in children, except in acute necrosis, 5; simulated by ague-fits, 20; amputations during, 22; after operation for varicocele, 69; chronic, its relation to acute, 155; course of, 156; distinct from hectic, 156; after ligature of subclavian artery, 157; after lithotomy, 159; not rarely survived; after acute necrosis, 161; contrasted with specific fevers, 164; its relation to erysipelas, 164; chronic, in urinary disease, after catheterism, 166; followed by acute phlebitis, 308

Pyæmic abscesses after ligature of hæmorrhoids, 70

**Q**UET necrosis; *see* Necrosis.

**R**ADIUS, fracture of, stiff hand after, 98

Rectum, residual abscess near, 319

Reflex atrophy in joint disease, 209

Residual abscess, 310; in spinal disease, 311; in joint disease, 314; in long bones,

## RES

- 316; by the rectum, 319; imitating bursæ and tumours, 319; treatment, prognosis, 320
- Respiration, ratio to pulse in operations, 31; retarded by hæmorrhage, 32; in strangulated hernia, 103, 115
- Responsibilities in operations, 75
- Rest of injured joints, too long continued, 93, 96, 97
- Retention of urine from stammering urinary organs, 80
- Rheumatism, operations during, 12; in injured joints, 95; gonorrhœal, its affinities with chronic pyæmia, 171
- Ribs fixed in spinal disease, 226
- Rigidity of limbs in nervous mimicry, 202
- Rigors depending on ague-fits, 20
- Risks of operations, the various, 1
- S**AVORY, Mr., on the treatment of patients before operations, 404
- Scalp cysts, operations on, sometimes fatal, 70
- Scapulæ, irregularities of, generally unimportant, 230
- Scarlet fever, after operations, 349, 415; characters of, 350, 416; relations to operations, 351; fatal cases following operations, 353
- Scrofula, aggravated by operations, 9; operations in, 8, 11; senile, 344; seats of election of, 344; characters of, 345; diagnosis of from gout, 345; from cancer, 346; treatment of, 347; minor signs of, 373; brought out by injury, 377; climax in early life, 380; mistaken for cancer, 381; results of amputations in, 382; re-appearance of, in the aged, 383; this form inveterate, 384; followed by gout or cancer, 385
- Scrotum, sloughing of, after hernia-operations, 153
- Semen, rarely found in urine, 270; circumstances under which it is present, 271; passed during defæcation, 273
- Senile scrofula, *see* Scrofula.
- Septum nasi, perforating ulcer of, 374
- Sex in nervous mimicry, 187.
- Sexual organs, relation to nervous mimicry and hysteria, 192; sexual hypochondriasis, *see* Hypochondriasis: functions, partial ignorance of, in civilised races, 269; sexual disorders a cause of hypochondriasis, 270; dreams in, 285; consequences of these disorders often exaggerated, 288

## STA

- Shampooing of injured joints, 94
- Shock, danger of in operations on young children, 5
- Shoulder, operation on, followed by pyæmia, 52; stiffened by involuntary muscular action, 89
- Skeleton at Marburg, 206
- Sleep, capacity for, value of, after operations, 44; its effect on stiff joints in children, 90
- Slipped tendons treated by bone-setters, 86
- Smith, Mr. Thomas, on hernia, 414; on scarlet-fever after operations, 416
- Sneezing, painful in spinal disease, 226
- Soden, Mr., his case of slipped biceps-tendon, 86, 409
- Soles, burning, a sign of gout, 373
- Spermatorrhœa, so-called, 272, 277
- Spinal irritation in hypochondriasis, 277; treatment of, 280; its connection with emissions, 289
- Spinal disease followed by residual abscess, 311
- Spine, stiffened by involuntary muscular action, 89; aching, cracking, 99; scrofulous disease in the old, 344; mimic disease of, 181, 187; symptoms of, 220; spine-aches, 220, 224; pain as a symptom of disease in, 221, 223; tenderness of, 221; pain in, with nausea or shivering, 222; curvature of, often painless, 223; lateral curvature of in the old, 223; angular curvature of in the old, symptoms of, 224; sprains of, 225; symptoms of disease in, diminished mobility of ribs, pain on coughing, or sneezing, &c, 226; weakness of, 227; shape of, as a symptom of disease, 228; imitated by nervous mimicry, 229; lateral curvature imitated by disorderly muscular action, 229; oblique posture without curvature, 229; mimic paraplegia, 231
- Sprains, treated by bone-setters; movements in; these sometimes mischievous, 91; 'old sprains,' a term including various conditions, 93
- Stammering, causes of, 77; with speech-organs, 77; with urinary organs, 78; with urethra, 79; family relations in, 80; does not produce real disease, 80; associated with various nervous disorders, 80; in deglutition; with œsophagus, 82; in defæcation, 83
- Standards of health for operations, 2, 5

## STO

- Stone, mimicry of symptoms after Napoleon's death, 194  
 Strangulation importance of, doubtful signs of, in hernia, 103  
 Stricture, medical treatment of, 42, 69; with kidney disease, 42; depending on swelling of the mucous membrane of the urethra, 42  
 String-halt, 212  
 Struma in injured joints, 95  
 Subclavian artery, ligature of, followed by chronic pyæmia, 157  
 Success in surgery, various estimates of, 75  
 Suckling, operations performed during, 49  
 Surgery, calamities of, 51  
 Sutures, silver, an improvement in practice, 76  
 Synovial fringes nipped, symptoms following, 87  
 Swelling as a sign of joint disease, 213  
 Symmetry in gouty phlebitis, 294  
 Syphilitic persons, operations on, 11; eruption appearing after a fright, 380  
 Syphilis, reappearance of, after long intervals, 383; combined with scrofula, tuberculous gout; caution in the use of mercury for, 392; secondary, continuous between its outbreaks, 165
- T**ABLES, value of, for estimating risks of operations, 2  
 Tarsus, stiff after injury, 98; position of foot after, 98; nervous mimicry of disease in, 197  
 Teale, Mr., on hernia, 123 (note); on necrosis of cartilage, 343  
 Teetotallers, operations on, 15  
 Temperature in nervous mimicry, 190; in joint disease, 218; affected by fatigue, 218; during convalescence, 190, 218  
 Testis, wasting of, not due to varicocele, 68; misplaced, complicating hernia, 140; undescended complicating strangulated hernia, 154; relapsing inflammation of, 310  
 Thompson, Dr. Symes, his illness after a dissection-wound, 327  
 Tibia, acute necrosis of, followed by chronic pyæmia, 165  
 Tongue, mimicry of cancer in, 244

## WIL

- Torsion of arteries, 76  
 Tuberculosis, with nervous mimicry, 188; evolution of, 366; evidence of inheritance, 366; minor signs of, 373  
 Tumours, nervous mimicry of, 233; phantom, characters of, 233; diagnosis of, 236; pulsating in abdomen, 237; imitated by residual abscess, 319  
 Typhoid fever, followed by phlebitis, 309; sequelæ of, 379  
 Typhus, followed by phlebitis, 307
- U**LCEr of septum nasi in tuberculosis, 374  
 Urethra stammering, 79  
 Urinary fever, 41; urinary organs, stammering in, 78; becoming 'nervous' when diseased, 80; disease of, followed by chronic pyæmia, 166  
 Urine, low specific gravity of, in the old, 44; containing semen, explanation concerning, 271  
 Uterine functions, in nervous mimicry, 191
- V**ARICOCELE does not cause impotence, 68; or wasting of testis, 68, 274; risks in operations for cure of, 69; pyæmia following operations for, 69; seldom requiring operations, 69; complicating hernia, 140; with strangulated hernia, 154; associated with hypochondriasis, 274; seldom really mischievous, 274; disappearing after marriage, 275  
 Venæ cavæ, phlebitis in branches of, 298  
 Veins, disease of, affecting operations, 33  
 Vomiting after operations, 25; its great importance in strangulated hernia, 113; its characters in, 115; after hernia-operations, 146
- W**ARMTH, in the treatment of hurt joints, 94  
 Warts on the face often best removed by caustic, 71  
 Wasting of limbs in joint disease, 209; about joints, produced by pressure, 210  
 Water-closets in bedrooms, 67  
 West, Dr., on narcotics for children, 400  
 Wilks, Dr., on dissection wounds, 324

MARCH, 1876.

# WORKS ON MEDICINE, SURGERY, AND GENERAL SCIENCE,

PUBLISHED BY

MESSRS. LONGMANS, GREEN, AND CO.,  
PATERNOSTER ROW, LONDON.

---

Anatomy, Surgery, and Physiology.

---

## THE SCIENCE AND ART OF SURGERY;

Being a Treatise on Surgical Injuries, Diseases, and Operations. By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, and Professor of Clinical Surgery in University College, London. Sixth Edition, thoroughly revised and enlarged; Illustrated by 712 Engravings on Wood. 2 vols. 8vo, price 32s.

---

## A SYSTEM OF SURGERY,

Theoretical and Practical, in Treatises by various Authors. Edited by TIMOTHY HOLMES, M.A., Surgeon and Lecturer on Surgery, St. George's Hospital. Second Edition, thoroughly revised, with numerous Woodcuts, Lithographs, and Chromolithographs; in all 472 Illustrations. In Five Volumes, 8vo, price One Guinea each.

\* \* Each Volume may be had separately, as follows:—

VOL. I., price 21s., comprises all the articles on GENERAL PATHOLOGY contained in the First Volume of the previous Edition down to the end of "Collapse," with the addition of Mr. CROFT'S essay on Hectic and Traumatic Fever and the After-Treatment of Operations, which formed part of the Appendix to the previous Edition.

VOL. II., price 21s., comprises all the Treatises in the previous Edition relating to General and Special Injuries.

VOL. III., price 21s.—Diseases of the Eye and Ear, of the Organs of Circulation, Muscles, and Bones.

VOL. IV., price 21s.—Diseases of the Organs of Locomotion, of Innervation, of Digestion, of Respiration, and of the Urinary Organs.

VOL. V., price 21s.—Diseases of the Genital Organs, of the Breast, Thyroid Gland, and Skin; Operative Surgery; APPENDIX of Miscellaneous Subjects; with a General Alphabetical INDEX to the whole Work, and a List of the Authors.

## QUAIN'S ELEMENTS OF ANATOMY.

The Eighth Edition. Re-edited by WILLIAM SHARPEY, M.D., LL.D., F.R.S., L. & E. Emeritus Professor of Anatomy and Physiology in University College, London; ALLEN THOMSON, M.D., LL.D., F.R.S., L. & E., Professor of Anatomy in the University of Glasgow; and EDWARD ALBERT SCHÄFER, Assistant Professor of Physiology in University College, London. Illustrated by upwards of 950 Engravings on Wood. 2 vols. 8vo, price 32s.

In the present Edition the distribution of the matter between the two volumes has been in some respects altered; and it is believed that the use of the book by students will be facilitated by the change. The First Volume consists of the Special or Descriptive Anatomy of the Bones, Joints, Muscles, Vessels, and Nerves. It also includes the subject of Surgical Anatomy, which was formerly treated of in a distinct chapter, originally written in the previous Editions. The whole of this volume has been edited by Dr. THOMSON, in association with Mr. DAVID N. KNOX, M.B. Demonstrator of Anatomy in the University of Glasgow, and assisted by Mr. H. CLARKE in the description of the Bloodvessels, and by Dr. GOWERS in that of the Cranial Nerves.

In the Second Volume the section on General Anatomy and the chapters on the Heart, the Respiratory, Vocal, Digestive, and Urinary Organs, and the Organs of the Senses, have been revised throughout, and in certain parts re-written by Dr. SHARPEY, in association with Mr. SCHÄFER, by whom the task has in large measure been performed.

A considerable number of new Figures have been introduced into the present Edition, some having been substituted for former ones now withdrawn, others added as new Illustrations. They are partly from original drawings, and partly electrotpe copies of figures in other published works.

## ANATOMY, DESCRIPTIVE AND SURGICAL.

By HENRY GRAY, F.R.S., late Lecturer on Anatomy at St. George's Hospital. With 411 large Woodcut Illustrations; those in the First Edition after Original Drawings by Dr. CARTER, from Dissections made by the Author and Dr. CARTER; the additional Drawings in the Second and subsequent Editions by Dr. WESTMACOTT. Seventh Edition, by T. HOLMES, M.A., Surgeon to St. George's Hospital; with an Introduction on General Anatomy and Development by the EDITOR. Royal 8vo, 28s.

\* \* The Seventh Edition has received a most careful revision both of the text and of the sections on Visceral Anatomy; and the section on the Anatomy of the Kidney has been entirely re-written by Mr. E. J. SPITTA, late Demonstrator of Anatomy at the School of St. George's Hospital. The new Illustrations incorporated in this edition are from original drawings by Dr. KLEIN.

## TABLETS OF ANATOMY AND PHYSIOLOGY.

By THOMAS COOKE, F.R.C.S., Senior Assistant-Surgeon to, and Demonstrator of Anatomy at, the Westminster Hospital. Crown 8vo.

Bones of Skull (2nd Thousand) 6d.	Nerve Centres ..... 9d.	Circulation, Respiration, Animal Heat (3rd Thousand, revised and corrected) .... 1s. 6d.
Bones of Face (2nd Thousand) 6d.	Cranial Nerves (2nd Thousand, enlarged) ..... 9d.	Digestion, Absorption ..... 9d.
Bones of Trunk ..... 6d.	Sympathetic Nerves ..... 6d.	Development (Gen. Devt. of Embryo) ..... 6d.
Bones of Upper Limb ..... 6d.	Respiratory Organs ..... 6d.	Development of Organs ..... 1s.
Bones of Lower Limb ..... 6d.	Male Genito-Urinary Organs 6d.	Comparative Anatomy (Eight Tablets on) ..... 1s.
Joints and Ligaments ..... 9d.	Digestive Organs ..... 6d.	Chronology of Generation (a large Tableau 3 ft. square) .. 6d.
Muscles ..... 9d.	Peritoneum and Abdominal Glands ..... 6d.	
Arteries of Head and Neck (2nd Thousand) ..... 6d.	Ear and Eye (3rd Thousand) .. 1s.	
Arteries of Limbs (3rd Thousand) ..... 6d.	Surgical Anatomy ..... 9d.	

OTHER TABLETS are in the Press.

TABLETS ON SURGERY will appear shortly.

## OUTLINES OF PHYSIOLOGY, HUMAN AND COMPARATIVE.

By JOHN MARSHALL, F.R.S., Professor of Surgery in University College, London; Surgeon to the University College Hospital. With 122 Woodcut Illustrations. 2 vols. crown 8vo, 32s.

## COMPARATIVE ANATOMY AND PHYSIOLOGY OF THE VERTEBRATE ANIMALS.

By RICHARD OWEN, F.R.S., Superintendent of the Nat. Hist. Departments, British Museum. 3 vols. 8vo, with 1,472 Woodcuts, 73s. 6d.

VOL. I. *Fishes and Reptiles*, with 452 Woodcuts, 21s.

VOL. II. *Warm-blooded Vertebrates*, with 406 Woodcuts, 21s.

VOL. III. *Mammalia, including Man*, with 614 Woodcuts, 31s. 6d.

## LECTURES ON THE COMPARATIVE ANATOMY AND PHYSIOLOGY OF THE INVERTEBRATE ANIMALS.

Delivered at the Royal College of Surgeons. By the same Author. Second Edition, revised, with 235 Woodcuts. 8vo, 21s.

## HEALTH IN THE HOUSE.

Twenty-five Lectures on Elementary Physiology in its application to the Daily Wants of Man and Animals. By MRS. C. M. BUCKTON, Member of the Leeds School Board. New and cheaper Edition (being the Sixth), thoroughly revised; with 41 Woodcuts and Diagrams. Small 8vo, price 2s.

'We most cordially recommend this admirable book to all who are interested in sanitary reform, and to the wives of clergymen and others specially interested in the welfare of the poor.'—*Academy*.

'Mrs. BUCKTON's book is one of the best

books of its kind ever written. We have seldom read so admirable a series of lectures on elementary physiology and the laws of health.'—*Manchester Examiner*.

'An admirable book for teachers and pupil-teachers.'—*School Board Chronicle*.

## Medical and Psychological Literature.

## LECTURES ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

Delivered at King's College, London, by SIR THOMAS WATSON, Bart., M.D., F.R.S., Hon. LL.B. Cantab., Hon. D.C.L. Oxon., &c., Physician-in-Ordinary to the Queen. Fifth Edition, revised and enlarged, with two Plates. 2 vols. 8vo, price 36s.

## CLINICAL LECTURES AND ESSAYS.

By SIR JAMES PAGET, Bart., F.R.S., D.C.L. Oxon., LL.D. Cantab., &c., Serjeant-Surgeon Extraordinary to the Queen, Surgeon to the Prince of Wales, Consulting-Surgeon to St. Bartholomew's Hospital. Edited by F. HOWARD MARSH, Assistant-Surgeon to St. Bartholomew's Hospital. 8vo, 15s.

## ON HOSPITALISM AND THE CAUSES OF DEATH AFTER OPERATIONS.

By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, and Professor of Clinical Surgery in University College. Crown 8vo, price 3s. 6d.



## EXAMINATION QUESTIONS IN ANATOMY, PHYSIOLOGY, BOTANY, MATERIA MEDICA, SURGERY, MEDICINE, MIDWIFERY, AND STATE-MEDICINE. Arranged by H. A. HUSBAND, M.B., M.C., M.R.C.S., L.S.A., &c. Second Edition, revised and augmented. 32mo, price 4s. 6d.

\* \* \* Since the last edition was published Examinations in STATE-MEDICINE have been instituted; and the QUESTIONS asked under this head on Epidemics, Law, Hygiene, Engineering, &c. are now added.

## A DICTIONARY OF MEDICINE.

Edited by RICHARD QUAIN, M.D., F.R.S., Fellow of the Royal College of Physicians, and Physician to the Hospital for Diseases of the Chest at Brompton; assisted by numerous Eminent Writers. In One Volume, 8vo. [Preparing for publication.]

## COPLAND'S DICTIONARY OF PRACTICAL MEDICINE:

Comprising Special Pathology, the Principles of Therapeutics, the Nature and Treatment of Diseases, Morbid Structures, and the Disorders especially Incidental to Climates, to Races, to Sex, and to the Epochs of Life; with an Appendix of Approved Formulæ. Abridged from the larger work by the Author, assisted by J. C. COPLAND, M.R.C.S. 8vo, 36s.

## THE SENSES AND THE INTELLECT.

By ALEXANDER BAIN, LL.D., Professor of Logic in the University of Aberdeen. Third Edition, with numerous Emendations, and a Review of Darwin on Expression as a Postscript. 8vo, 15s.

## THE EMOTIONS AND THE WILL.

By the same Author. Third Edition, thoroughly revised, and in great part re-written. 8vo, price 15s.

## MENTAL AND MORAL SCIENCE:

A Compendium of Psychology and Ethics. By the same Author. Third Edition. Crown 8vo, 10s. 6d. To be had also in TWO PARTS:—

PART I., *Mental Science*, price 6s. 6d.; PART II., *Moral Science*, price 4s. 6d.

## LOGIC, DEDUCTIVE AND INDUCTIVE.

By the same Author. In Two Parts, crown 8vo, price 10s. 6d. Each Part may be had separately:—

PART I., *Deduction*, price 4s.; PART II., *Induction*, price 6s. 6d.

## THE HISTORY OF PHILOSOPHY FROM THALES TO COMTE.

By GEORGE HENRY LEWES. Fourth Edition, re-written and greatly enlarged. 2 vols. 8vo, price 32s.

'Mr. LEWES'S "History of Philosophy," in its present shape, stands alone in English literature. Whatever may be thought of the views which it is its author's object to promote, his book is the most trustworthy, the clearest, the liveliest, and the most intelligent exposition of the views of the various philosophers of whom it treats which is to be found in the English language. If he had written

nothing else, these two volumes would be quite enough to give him a high and a permanent place in English literature. Apart, however, from their literary merit, they have an independent value. They are an argument as well as a history; an argument which it would require the rarest qualifications to answer effectually.'—*Pall Mall Gazette*.



**THE SECRET OF HEGEL:**

Being the Hegelian System in Origin, Principle, Form, and Matter. By JAMES HUTCHISON STIRLING, F.R.C.S. & LL.D. Edin. 2 vols., 8vo, 28s.

**SIR WILLIAM HAMILTON;**

Being the Philosophy of Perception: an Analysis. By JAMES HUTCHISON STIRLING, F.R.C.S. & LL.D. Edin. 8vo, 5s.

**A SYSTEM OF LOGIC, RATIOCINATIVE AND INDUCTIVE;**

Being a Connected View of the Principles of Evidence and the Methods of Scientific Investigation. By JOHN STUART MILL. Ninth Edition. 2 vols. 8vo, price 25s.

KILLICK'S HANDBOOK OF MILL'S LOGIC, price 3s. 6d.

STEBBING'S ANALYSIS OF MILL'S LOGIC, price 3s. 6d.

**Pathology and the Treatment of Disease.****LECTURES ON SURGICAL PATHOLOGY**

Delivered at the Royal College of Surgeons of England. By Sir JAMES PAGET, Bart., F.R.S., D.C.L., Oxon., LL.D., Cantab., &c., Serjeant-Surgeon Extraordinary to the Queen, Surgeon to the Prince of Wales, Consulting Surgeon to St. Bartholomew's Hospital. Third Edition, re-edited by the AUTHOR and W. TURNER, M.B., Professor of Anatomy in the University of Edinburgh. 8vo, with 131 Woodcuts, price 21s.

**PULMONARY CONSUMPTION; ITS NATURE, VARIETIES, AND TREATMENT:**

With an Analysis of One Thousand Cases to exemplify its Duration. By C. J. B. WILLIAMS, M.D., F.R.S., Fellow of the Royal College of Physicians; Senior Consulting Physician to the Hospital for Consumption, Brompton; and by C. T. WILLIAMS, M.A., M.D. Oxon.; Fellow of the Royal College of Physicians; Physician to the Hospital for Consumption, Brompton. Post 8vo, price 10s. 6d.

**A TREATISE ON MEDICAL ELECTRICITY, THEORETICAL AND PRACTICAL;**

And its Use in the Treatment of Paralysis, Neuralgia, and other Diseases. By JULIUS ALTHAUS, M.D., Member of the Royal College of Physicians; Fellow of the Royal Medical and Chirurgical Society; Senior Physician to the Infirmary for Epilepsy and Paralysis. Third Edition, enlarged and revised; with 147 Illustrations engraved on Wood. 8vo, price 18s.

## NOTES ON THE TREATMENT OF SKIN DISEASES.

By ROBERT LIVEING, M.A. and M.D. Cantab., F.R.C.P. Lond., Physician to Middlesex Hospital, in charge of the Cutaneous Department. Third Edition, revised and enlarged. 18mo, price 2s. 6d.

## ELEPHANTIASIS GRÆCORUM, or TRUE LEPROSY ;

Being the Goulstonian Lectures for 1873, revised and enlarged. By ROBERT LIVEING, M.A. and M.D. Cantab., F.R.C.P. London, &c. Crown 8vo, price 4s. 6d.

## ON ADDISON'S DISEASE,

Being the Croonian Lectures for 1875, delivered before the Royal College of Physicians, revised and illustrated by Reports of Cases. By E. HEADLAM GREENHOW, M.D., F.R.S., F.R.C.P., Physician to, and Lecturer on Medicine at, the Middlesex Hospital. With 5 Plates of Figures (3 coloured), 8vo, price 12s. 6d.

## A TREATISE ON THE CONTINUED FEVERS OF GREAT BRITAIN.

By CHARLES MURCHISON, M.D., LL.D., F.R.S., &c., Fellow of the Royal College of Physicians ; Physician and Lecturer on the Principles and Practice of Medicine, St. Thomas's Hospital. Second Edition, thoroughly revised and enlarged ; with 5 Chromolithographs, 19 Diagrams in Lithography, and 22 Illustrations engraved on Wood. 8vo, price 24s.

## TYPHOID FEVER ;

Its Nature, Mode of Spreading, and Prevention. By WILLIAM BUDD, M.D., F.R.S. With Four Plates (one coloured). Royal 8vo, price 16s.

## LECTURES ON FEVER

Delivered in the Theatre of the Meath Hospital and County of Dublin Infirmary. By WILLIAM STOKES, M.D., D.C.L. Oxon., F.R.S., Regius Professor of Physic in the University of Dublin and Physician-in-Ordinary to the Queen in Ireland. Edited by J. W. MOORE, M.D., F.R.C.P., Assistant-Physician to the Cork-Street Fever Hospital, Dublin. 8vo, price 15s.

## A TREATISE ON GOUT AND RHEUMATIC GOUT.

By ALFRED B. GARROD, M.D., F.R.S., &c., Physician to King's College Hospital. A New Edition, thoroughly revised, with much additional practical matter. 8vo. [On May 1.

## CLINICAL RESEARCHES ON DISEASE IN INDIA.

By CHARLES MOREHEAD, M.D., Surgeon to the Jarnsetjee Jeejeebhoy Hospital. Second Edition, thoroughly revised. 8vo, 21s.

## DISEASES OF THE KIDNEY AND URINARY DERANGEMENTS.

By W. HOWSHIP DICKINSON, M.D. Cantab., F.R.C.P., &c., Physician to, and Lecturer on Pathology at, St. George's Hospital; Physician to the Hospital for Sick Children; Corresponding Member of the Academy of Medicine of New York. In Three Parts. PART I.—*Diabetes*, with 3 Plates of Figures and 17 Woodcuts. 8vo, price 10s. 6d.

## ON CONCUSSION OF THE SPINE, NERVOUS SHOCK, AND OTHER OBSCURE INJURIES OF THE NERVOUS SYSTEM, in their Clinical and Medico-Legal Aspects.

By JOHN ERIC ERICHSEN, Senior Surgeon to University College Hospital, Professor of Clinical Surgery in University College, London, &c. Crown 8vo, price 10s. 6d.

## DENTAL PATHOLOGY AND SURGERY.

By S. JAMES A. SALTER, M.B., F.R.S., Member of the Royal College of Surgeons, and Examiner in Dental Surgery at the College; Dental Surgeon to Guy's Hospital. With 133 Illustrations engraved on Wood. 8vo, price 18s.

'This volume has arrived most opportunely for those practitioners who intend going up for the L.D.S., and will afford them a fund of information which they will not readily find elsewhere. We recommend it to their careful perusal, and, we doubt not, it will give pleasure and satisfaction to the practitioner as well as to students, whether old or young.'—*British Journal of Dental Science*.

## INJURIES OF THE EYE, ORBIT, AND EYELIDS;

Their Immediate and Remote Effects. By GEORGE LAWSON, F.R.C.S., Surgeon to the Royal London Ophthalmic Hospital, Moorfields. 8vo, with 92 Woodcuts, price 12s. 6d.

## Diseases of Women and Children, and Popular Medical Works.

## THE DIAGNOSIS AND TREATMENT OF DISEASES OF WOMEN, INCLUDING THE DIAGNOSIS OF PREGNANCY.

By GRAILY HEWITT, M.D., Professor of Midwifery and Diseases of Women, University College, and Obstetric Physician to the Hospital; Examiner in Obstetric Medicine to the University of London. Third Edition, revised, and for the most part re-written; with several additional Illustrations. 8vo, with 132 Engravings on Wood, price 24s.

## HINTS TO MOTHERS FOR THE MANAGEMENT OF THEIR HEALTH DURING PREGNANCY AND IN THE LYING-IN ROOM :

With Hints on Nursing, &c. By THOMAS BULL, M.D. New Edition, revised and enlarged. Fcap. 5s.

## THE MATERNAL MANAGEMENT OF CHILDREN IN HEALTH AND DISEASE.

By the same Author. New Edition, revised and enlarged. Fcap. 5s.

## ON THE SURGICAL TREATMENT OF CHILDREN'S DISEASES.

By TIMOTHY HOLMES, Surgeon to St. George's Hospital, and Surgeon-in-Chief to the Metropolitan Police. Second Edition, thoroughly revised ; with Additional Chapters on Orthopædic Surgery and Paracentesis Thoracis. With 9 Chromolithographic Plates and 112 Woodcut Illustrations from Original Drawings. 8vo, 21s.

## LECTURES ON THE DISEASES OF INFANCY AND CHILDHOOD.

By CHARLES WEST, M.D., &c., Physician to the Hospital for Sick Children ; Fellow of the Royal College of Physicians. Sixth Edition, revised and enlarged. 8vo, price 18s.

## THE HANDBOOK FOR MIDWIVES.

By HENRY FLY SMITH, M.B. Oxon., M.R.C.S., late Assistant-Surgeon at the Hospital for Sick Women, Soho Square. With 41 Woodcuts. Crown 8vo, price 5s.

## *Materia Medica and Therapeutics.*

## THOMSON'S CONSPECTUS ADAPTED TO THE BRITISH PHARMACOPŒIA.

By EDMUND LLOYD BIRKETT, M.D., &c., Physician to the City of London Hospital for Diseases of the Chest. New Edition, with Supplement containing Notices of the New Medicines and Preparations added in 1874 to the British Pharmacopœia. 18mo, 6s.

## THE ESSENTIALS OF MATERIA MEDICA AND THERAPEUTICS.

By ALFRED BARING GARROD, M.D., F.R.S., Fellow of the Royal College of Physicians ; Professor of Materia Medica and Therapeutics, King's College, London. Fourth Edition, revised and edited, under the supervision of the Author, by E. B. BAXTER, M.D., Med. Tutor King's Coll. and Physician to the Evelinor Hospital for Sick Children. Crown 8vo, price 12s. 6d.

## DR. PEREIRA'S MATERIA MEDICA AND THERAPEUTICS,

Abridged, and adapted for the use of Medical and Pharmaceutical Practitioners and Students. Edited by Professor R. BENTLEY, M.R.C.S., F.L.S., and by Professor T. REDWOOD, Ph.D., F.C.S. With an Appendix containing the New Medicines included in 1874 by the Medical Council in the British Pharmacopœia, and Commentaries thereon by the Editors. 8vo, with 126 Woodcuts, price 25s.

---

## Chemistry.

---

## DICTIONARY OF CHEMISTRY AND THE ALLIED BRANCHES OF OTHER SCIENCES.

By HENRY WATTS, F.R.S., Editor of the Journal of the Chemical Society, assisted by eminent Scientific and Practical Chemists. (Including Supplementary Volume of Recent Discoveries, bringing the Record of Chemical Discovery down to the year 1873.) 7 vols. 8vo, £10 16s. 6d.

---

## ELEMENTS OF CHEMISTRY,

Theoretical and Practical. By WILLIAM ALLEN MILLER, M.D., F.R.S., late Professor of Chemistry, King's College, London. Revised, with Additions, by HERBERT MACLEOD, F.C.S., Professor of Experimental Science, Indian Civil Engineering College, Cooper's Hill. 3 vols. 8vo.

PART I.—CHEMICAL PHYSICS. 8vo, price 15s.

PART II.—INORGANIC CHEMISTRY, price 21s.

PART III.—ORGANIC CHEMISTRY. New Edition, *in the press*.

## INTRODUCTION TO THE STUDY OF INORGANIC CHEMISTRY.

By the same Author. Edited by T. M. GOODEVE, M.A. With 71 Figures on Wood. Small 8vo, price 3s. 6d.

---

## QUANTITATIVE CHEMICAL ANALYSIS.

By T. E. THORPE, Ph.D., F.R.S.E., Professor of Chemistry in the Andersonian University, Glasgow. Edited by C. W. MERRIFIELD, F.R.S. With 88 Woodcuts. Small 8vo, price 4s. 6d.

---

## QUALITATIVE CHEMICAL ANALYSIS AND LABORATORY PRACTICE.

By T. E. THORPE, Ph.D., F.R.S.E., Professor of Chemistry in the Andersonian University, Glasgow; and M. M. PATTISON MUIR. Edited by C. W. MERRIFIELD, F.R.S. With Plate and 57 Woodcuts. Small 8vo, price 3s. 6d.

## INTRODUCTION TO THE STUDY OF ORGANIC CHEMISTRY;

The Chemistry of Carbon and its Compounds. By H. E. ARMSTRONG, Ph.D., Professor of Chemistry in the London Institution. Edited by C. W. MERRIFIELD, F.R.S. With 8 Woodcuts. Small 8vo, price 3s. 6d.

## A COURSE OF PRACTICAL CHEMISTRY,

Arranged for the use of Medical Students. By WILLIAM ODLING, M.B., F.R.S., Fellow of the Royal College of Physicians, Secretary to the Chemical Society, and Lecturer on Chemistry at St. Bartholomew's Hospital. Fifth Edition. Crown 8vo, with Woodcuts. [*In the press.*]

## CHEMICAL NOTES FOR THE LECTURE ROOM—ON HEAT, LAWS OF CHEMICAL COMBINATION, AND CHEMISTRY OF THE NON-METALLIC ELEMENTS.

By THOMAS WOOD, Ph.D., F.C.S. Third Edition. Crown 8vo, 5s.  
NOTES ON THE METALS, by the same Author, Second Edition, price 5s.

## TEXT-BOOK OF AGRICULTURAL CHEMISTRY.

By ROBERT WARINGTON. Edited by C. W. MERRIFIELD, F.R.S. Small 8vo. [*In the press.*]

## TEXT-BOOK OF CHEMICAL PHILOSOPHY.

By WILLIAM A. TILDEN, B. Sc. Lond., F.C.S., Lecturer on Chemistry in Clifton College. Edited by C. W. MERRIFIELD, F.R.S. Small 8vo. [*In the press.*]

## TEXT-BOOK OF PHOTOGRAPHY.

By Captain ABNEY, Royal Engineers, F.R.A.S., F.G.S., Instructor in Chemistry and Photography at the School of Military Engineering, Chatham. Edited by C. W. MERRIFIELD, F.R.S. Small 8vo. [*In the press.*]

## SELECT METHODS IN CHEMICAL ANALYSIS, CHIEFLY INORGANIC.

By WILLIAM CROOKES, F.R.S., F.C.S., &c. Editor of "The Chemical News" and of "The Quarterly Journal of Science." With 22 Woodcuts. Crown 8vo, price 12s. 6d., cloth.

## A PRACTICAL HANDBOOK OF DYEING AND CALICO PRINTING.

By W. CROOKES, F.R.S., F.C.S., &c. With 11 Page Plates, 49 Specimens of Dyed and Printed Fabrics, and 36 Woodcuts. 8vo, price 42s.

## INDUSTRIAL CHEMISTRY;

A Manual for Manufacturers and for use in Colleges or Technical Schools. Being a Translation by Dr. J. D. BARRY of Professors Stohmann and Engler's German Edition of PAYEN'S *Précis de Chimie Industrielle*. Edited throughout and supplemented with Chapters on the Chemistry of the Metals by B. H. PAUL, Ph.D. In One thick Volume, 8vo, with very numerous Plates and Woodcuts. [*In the press.*]

## Science and Natural History.

### BRANDE'S DICTIONARY OF SCIENCE, LITERATURE, AND ART;

Comprising the Definitions and Derivations of the Scientific Terms in general use, together with the History and Descriptions of the Scientific Principles of nearly every branch of Human Knowledge. Edited by W. T. BRANDE, D.C.L., F.R.S., LL.D., and the Rev. GEORGE W. COX, M.A., Author of 'The Aryan Mythology,' &c., assisted by numerous Contributors. New Edition, revised. 3 vols. medium 8vo, 63s.

### HUNT'S DICTIONARY OF ARTS, MANUFACTURES, AND MINES;

Containing a clear Exposition of their Principles and Practice. Seventh Edition, completely revised and greatly enlarged by ROBERT HUNT, F.R.S., Keeper of Mining Records, assisted by F. W. RUDLER, F.G.S. and by numerous Contributors. With above 2000 Woodcuts. 3 vols. medium 8vo, 5l. 5s. od.

### INTRODUCTION TO EXPERIMENTAL PHYSICS, THEORETICAL AND PRACTICAL;

Including Directions for Constructing Physical Apparatus and for Making Experiments. By A. F. WEINHOLD, Professor in the Royal Technical School at Chemnitz. Translated and edited (with the Author's sanction) by B. LOEWY, F.R.A.S. With a Preface by G. C. FOSTER, F.R.S., Professor of Physics in University College, London. Illustrated. 3 Coloured Plates and 404 Woodcuts. 8vo, price 31s. 6d.

### ELEMENTARY TREATISE ON PHYSICS;

Experimental and Applied, for the use of Colleges and Schools. Translated and edited from GANOT'S *Eléments de Physique* (with the Author's sanction) by E. ATKINSON, Ph.D., F.C.S., Professor of Experimental Science, Staff College, Sandhurst. Seventh Edition, revised and enlarged, with 4 Coloured Plates and 746 Woodcuts. Post 8vo, price 15s.

### PROBLEMS AND EXAMPLES IN PHYSICS.

An Appendix to the Seventh and other Editions of GANOT'S 'Elementary Treatise.' 8vo, price 1s.

### NATURAL PHILOSOPHY FOR GENERAL READERS AND YOUNG PERSONS;

Being a Course of Physics divested of Mathematical Formulæ, and expressed in the language of daily life. Translated from GANOT'S *Cours de Physique* (with the Author's sanction) by E. ATKINSON, Ph.D., F.C.S. Second Edition, carefully revised; with 20 pages of New Matter, 2 Coloured Plates, and 429 Woodcuts, of which 24 are New in this Edition. Crown 8vo, price 7s. 6d.

### THE CORRELATION OF PHYSICAL FORCES.

Sixth Edition, with other contributions to Science. By the Hon. Sir W. R. GROVE, M.A., F.R.S., one of the Judges of the Court of Common Pleas. 8vo, price 15s.

## AN ELEMENTARY EXPOSITION OF THE DOCTRINE OF ENERGY.

By D. D. HEATH, M.A., Fellow of Trinity College, Cambridge. Post 8vo, 4s. 6d.

## AIR AND RAIN;

The Beginnings of a Chemical Climatology. By ROBERT ANGUS SMITH, Ph.D., F.R.S., F.C.S. (General) Inspector of Alkali Works for the Government. With 8 Illustrations. 8vo, price 24s.

## AIR AND ITS RELATIONS TO LIFE;

Being, with some Additions, the substance of a Course of Lectures delivered at the Royal Institution of Great Britain in 1874. By WALTER NOEL HARTLEY, F.C.S., Demonstrator of Chemistry at King's College, London. With 66 Woodcut Illustrations. Small 8vo, price 6s.

## HEAT A MODE OF MOTION.

By JOHN TYNDALL, LL.D., D.C.L., F.R.S., Professor of Natural Philosophy in the Royal Institution of Great Britain. Fifth Edition, with Plate and 110 Woodcuts. Crown 8vo, price 10s. 6d.

## SOUND.

By the same Author. Third Edition, revised and augmented, including Recent Researches in Fog-Signalling; with Portrait and 190 Woodcuts and Diagrams. Crown 8vo, price 10s. 6d.

LECTURES ON LIGHT delivered in America in 1872 and 1873. By the same Author. Second Edition, with Portrait engraved on Steel, 1 Lithographic Plate, and 59 Diagrams. Crown 8vo, price 7s. 6d.

## CONTRIBUTIONS TO MOLECULAR PHYSICS IN THE DOMAIN OF RADIANT HEAT.

By the same Author. With 2 Plates and 31 Woodcuts. 8vo, price 16s.

## RESEARCHES ON DIAMAGNETISM AND MAGNE- CRYSTALLIC ACTION; including the Question of Diamagnetic Polarity.

By the same Author. With 6 Plates and many Woodcuts. 8vo, price 14s.

## NOTES OF A COURSE OF SEVEN LECTURES ON ELECTRICAL PHENOMENA AND THEORIES.

By the same Author. Crown 8vo, price 1s. sewed, or 1s. 6d. cloth.

## NOTES OF A COURSE OF NINE LECTURES ON LIGHT.

By the same Author. Crown 8vo, 1s. sewed, or 1s. 6d. cloth.

## FRAGMENTS OF SCIENCE.

By the same Author. New Edition, being the Third, thoroughly revised, with a New Preface. Crown 8vo, price 10s. 6d.

## A SHORT MANUAL OF HEAT FOR THE USE OF SCHOOLS AND SCIENCE CLASSES.

By the Rev. A. IRVING, B.A. and B.Sc., Second Master of the High School, Nottingham. With 33 Diagrams. Small 8vo, price 2s. 6d.



## THEORY OF HEAT.

By J. CLERK MAXWELL, M.A., LL.D. Edin., F.R.SS. L. & E., Professor of Experimental Physics in the University of Cambridge. Edited by T. M. GOODRVE, M.A. With 41 Woodcuts and Diagrams. Small 8vo, price 3s. 6d. cloth.

## BRINKLEY'S ASTRONOMY.

Revised and partly re-written. By J. W. STUBBS, D.D., Fellow and Tutor of Trinity College; and F. BRUNNOW, Ph.D. Professor of Astronomy in the University of Dublin. With Additional Chapters and Questions for Examination. Second Edition, enlarged and improved. Crown 8vo, with Diagrams, price 6s.

## OUTLINES OF ASTRONOMY.

By Sir JOHN F. W. HERSCHEL, Bart., K.H., &c., Member of the Institute of France. Twelfth Edition, with 9 Plates, and numerous Diagrams. Square crown 8vo, price 12s.

## CELESTIAL OBJECTS FOR COMMON TELESOPES.

By the Rev. T. W. WEBB, M.A., F.R.A.S., Incumbent of Hardwick, Herefordshire. New Edition, thoroughly revised; with Map of the Moon and numerous Woodcuts. Crown 8vo, price 7s. 6d.

## A NEW STAR ATLAS,

For the Library, the School, and the Observatory, in Twelve Circular Maps (with Two Index Plates). Intended as a Companion to 'Webb's Celestial Objects for Common Telescopes.' With a Letterpress Introduction on the Study of the Stars, illustrated by 9 Diagrams. By RICHARD A. PROCTOR, B.A., Hon. Sec. R.A.S. Crown 8vo, price 5s.

## SPECTRUM ANALYSIS

In its Application to Terrestrial Substances and the Physical Constitution of the Heavenly Bodies. Familiarly explained by Dr. H. SCHELLEN, Director der Realschule, Cologne. Translated from the German by JANE and CAROLINE LASSELL; edited, with Notes, by W. HUGGINS, LL.D., F.R.S. With 13 Plates (6 Coloured), including Angström's and Kirchhoff's Maps, and 223 Woodcuts. 8vo, price 28s.

## THE TRANSITS OF VENUS;

A Popular Account of Past and Coming Transits, from the first observed by Horrocks A.D. 1639 to the Transit of A.D. 2012. By R. A. PROCTOR, B.A. With 20 Plates (12 Coloured) and 37 Woodcut Illustrations. Crown 8vo, price 8s. 6d.

**THE MOON**, and the Condition and Configurations of its Surface. By EDMUND NEISON, Fellow of the Royal Astronomical Society, &c. In One Volume, 8vo, illustrated by Maps and Plates. [Nearly ready.]

**THE MOON**; her Motions, Aspect, Scenery, and Physical Condition. By RICHARD A. PROCTOR, B.A. With 22 Lithographic Plates, Charts, and Diagrams, 1 Wood Engraving, and 3 Lunar Photographs by Rutherford, of New York. Crown 8vo. Price 15s.

**THE SUN: RULER, LIGHT, FIRE, AND LIFE OF THE PLANETARY SYSTEM.**

By RICHARD A. PROCTOR, B.A. Second Edition, revised; with 10 Plates (7 coloured) and 106 Figures engraved on Wood. Crown 8vo, price 14s.

**OTHER WORLDS THAN OURS;**

The Plurality of Worlds Studied under the Light of Recent Scientific Researches. By R. A. PROCTOR, B.A. Third Edition, revised and enlarged; with 14 Illustrations (6 coloured). Crown 8vo, price 10s. 6d.

**THE ORBS AROUND US;**

A Series of Familiar Essays on the Moon and Planets, Meteors and Comets, the Sun and Coloured Pairs of Suns. By RICHARD A. PROCTOR, B.A. Second Edition, with Chart and 4 Diagrams. Crown 8vo, price 7s. 6d.

**ESSAYS ON ASTRONOMY:**

A Series of Papers on Planets and Meteors, the Sun and sun-surrounding Space, Stars, and Star Cloudlets; and a Dissertation on the approaching Transit of Venus. By the same Author. With 10 Plates and 24 Woodcuts. 8vo, price 12s.

**LIGHT SCIENCE FOR LEISURE HOURS;**

A Series of Familiar Essays on Scientific Subjects, Natural Phenomena, &c. By the same Author. First and Second Series. Crown 8vo, 7s. 6d. each.

**FRAGMENTARY PAPERS ON SCIENCE and**

other Subjects. By the late Sir HENRY HOLLAND, Bart., M.D., &c. Edited by his Son, the Rev. FRANCIS J. HOLLAND. 8vo, price 14s.

**A HANDBOOK OF PRACTICAL TELEGRAPHY.**

By R. S. CULLEY, Member Inst. C.E., Engineer-in-chief of Telegraphs to the Post Office. The Sixth Edition, revised and enlarged; with 144 Woodcuts and 5 Lithographic Plates of Apparatus. 8vo, price 16s.

**TEXT-BOOK OF TELEGRAPHY.**

By W. H. PREECE, C.E., Divisional Engineer, P.O. Telegraphs; and J. SIVEWRIGHT, M.A., Superintendent (Engineering Department) P.O. Telegraphs. Edited by C. W. MERRIFIELD, F.R.S. With 160 Figures and Diagrams engraved on wood. Small 8vo, 3s. 6d.

## TEXT-BOOK OF MINERALOGY.

By H. BAUERMAN, Museum of Practical Geology. Edited by C. W. MERRIFIELD, F.R.S. Small 8vo. *[In the press.]*

## METALS, THEIR PROPERTIES AND TREATMENT.

By CHARLES LOUDON BLOXAM, Professor of Chemistry in King's College, London ; Professor of Chemistry in the Royal Military Academy and in the Department of Artillery Studies, Woolwich. Edited by T. M. GOODEVE, M.A., With 105 Figures on Wood. Small 8vo, price 3s. 6d.

## MANUAL OF PRACTICAL ASSAYING.

By JOHN MITCHELL, F.C.S. Fourth Edition, in which are incorporated all the recent valuable improvements in Assaying ; including Volumetric and Colorimetric Assays, and the Blowpipe Assays. Edited and re-written by W. CROOKES, F.R.S., with 199 Figures and Diagrams engraved on wood. 8vo, price 31s. 6d.

## A PRACTICAL TREATISE ON METALLURGY,

Adapted from the last German Edition of Professor KERL's *Metallurgy*, by WILLIAM CROOKES, F.R.S., and ERNST RÖHRIG, Ph.D. 3 vols. 8vo, price 4l. 19s.

## THE TREASURY OF BOTANY, OR POPULAR DICTIONARY OF THE VEGETABLE KINGDOM ;

With which is incorporated a Glossary of Botanical Terms. Edited by J. LINDLEY, M.D., F.R.S., and T. MOORE, F.L.S., assisted by numerous Contributors. With 20 Steel Plates, and numerous Woodcuts from Original Designs by W. H. FITCH. 2 Parts, fcap. 8vo, 12s.

## LOUDON'S ENCYCLOPÆDIA OF PLANTS :

Comprising the Specific Character, Description, Culture, History, Application in the Arts, and every other desirable particular respecting all the plants indigenous to, cultivated in, or introduced into, Britain. Corrected by Mrs. LOUDON. 8vo, with above 12,000 Woodcuts, price 42s.

## DECAISNE & LE MAOUT'S GENERAL SYSTEM OF DESCRIPTIVE AND ANALYTICAL BOTANY.

Translated from the French by MRS. HOOKER. The orders arranged after the method followed in the Universities and Schools of Great Britain, its Colonies, America, and India, with Additions, an Appendix on the Natural Method, and a Synopsis of the Orders, by J. D. HOOKER, C.B., F.R.S., &c., Director of the Royal Botanic Gardens, Kew. With 5,500 Woodcuts from Designs by L. Stenheil and A. Riocreux. Imperial 8vo, price 31s. 6d.

## TEXT-BOOK OF STRUCTURAL AND PHYSIOLOGICAL BOTANY.

By Dr. O. W. THOMÉ, Ordinary Professor of Botany at the School of Science and Art, Cologne. Translated and edited by A. W. BENNETT, M.A., B. Sc., F.L.S., &c., Lecturer on Botany at St. Thomas's Hospital. *[In the press.]*

# Index.

Abney's Text-Book of Photography	10	Morehead on Disease in India	6
Althaus's Medical Electricity	5	Murchison on Continued Fevers	6
Armstrong's Organic Chemistry	10	Neison on the Moon	14
Bain on the Emotions and Will	4	Odling's Practical Chemistry	10
— on Mental and Moral Science	4	Owen's Comparative Anatomy and Physiology of Vertebrata	3
— on the Senses and Intellect	4	Owen's Lectures on the Invertebrata	3
—'s Logic	4	Paget's Clinical Lectures and Ad- dresses	3
Bauerman's Text-Book of Mineralogy	15	Paget's Surgical Pathology	5
Bloxam on Metals	15	Payen's Industrial Chemistry	10
Brande's Dictionary of Science, Literature, and Art	11	Pereira's Elements of Materia Medica	9
Brinkley's Astronomy	13	Preece and Sivewright's Telegraphy	14
Buckton's Physiological Lectures	3	Proctor on Plurality of Worlds	14
Budd on Typhoid Fever	6	— on the Sun	14
Bull's Hints to Mothers	8	Proctor's Astronomical Essays	14
— Management of Children	8	— Moon	14
Cooke's Tablets of Anatomy and Physiology	2	— New Star Atlas	13
Copland's Dictionary of Medicine	4	— Orbs Around us	14
Crookes on Chemical Analysis	10	— Scientific Essays	14
— Handbook on Dyeing	10	— Transits of Venus	13
Culley's Handbook of Telegraphy	14	Quain's Anatomy	2
Decaisne and Le Maout's Botany	15	— Medical Dictionary	4
Dickinson on Diseases of the Kidney	7	Salter's Dental Pathology & Surgery	7
Erichsen on Concussion of the Spine	7	Schellen's Spectrum Analysis	13
—'s Hospitalism	3	Smith's Air and Rain	12
— Surgery	1	— Handbook for Midwives	8
Ganot's Natural Philosophy	11	Stebbing's Analysis of Mill's Logic	5
— Physics	11	Stirling's Hamilton	5
— Problems and Examples in Physics	11	— Secret of Hegel	5
Garrod on Gout	6	Stokes on Fever	6
Garrod's Materia Medica	8	Thomé's Structural and Physiological Botany	15
Gray's Anatomy	2	Thomson's Conspectus, by Birkett	8
Greenhow on Addison's Disease	6	Thorpe's Quantitative Analysis	9
Grove's Correlation of Physical Forces	11	Thorpe & Muir's Qualitative Analysis	9
Hartley on Atmospheric Air	12	Tilden's Chemical Philosophy	10
Heath on Doctrine of Energy	12	Tyndall on Diamagnetism	12
Herschel's Outlines of Astronomy	13	Tyndall's Fragments of Science	12
Hewitt on the Diseases of Women	7	— Lectures on Heat	12
Holland's Fragments on Science	14	— Light	12
Holmes's Surgery	1	— Sound	12
— Surgical Diseases of Infancy	8	— Molecular Physics	12
Husband's Examination Questions	4	— Notes on Electricity	12
Irving's Manual of Heat	12	— Notes on Light	12
Kerl's Metallurgy	15	Ure's Dictionary of Arts, Manufac- tures, and Mines	11
Killick's Handbook of Mill's Logic	5	Warington's Agricultural Chemistry	10
Lawson on Injuries of the Eye	7	Watson's Principles and Practice of Physic	3
Lewes's History of Philosophy	4	Watts's Dictionary of Chemistry	9
Lindley's Treasury of Botany	15	Webb's Celestial Objects for Com- mon Telescopes	13
Living on Skin Diseases	6	Weinhold's Experimental Physics	11
— Leprosy	6	West on the Diseases of Children	8
Loudon's Encyclopædia of Plants	15	Williams on Pulmonary Consumption	5
Marshall's Outlines of Physiology	2	Wood's Chemical Notes	10
Maxwell's Theory of Heat	13	— Notes on the Metals	10
Mill's System of Logic	5		
Miller's Elements of Chemistry	9		
— Inorganic Chemistry	9		
Mitchell's Assaying	15		









